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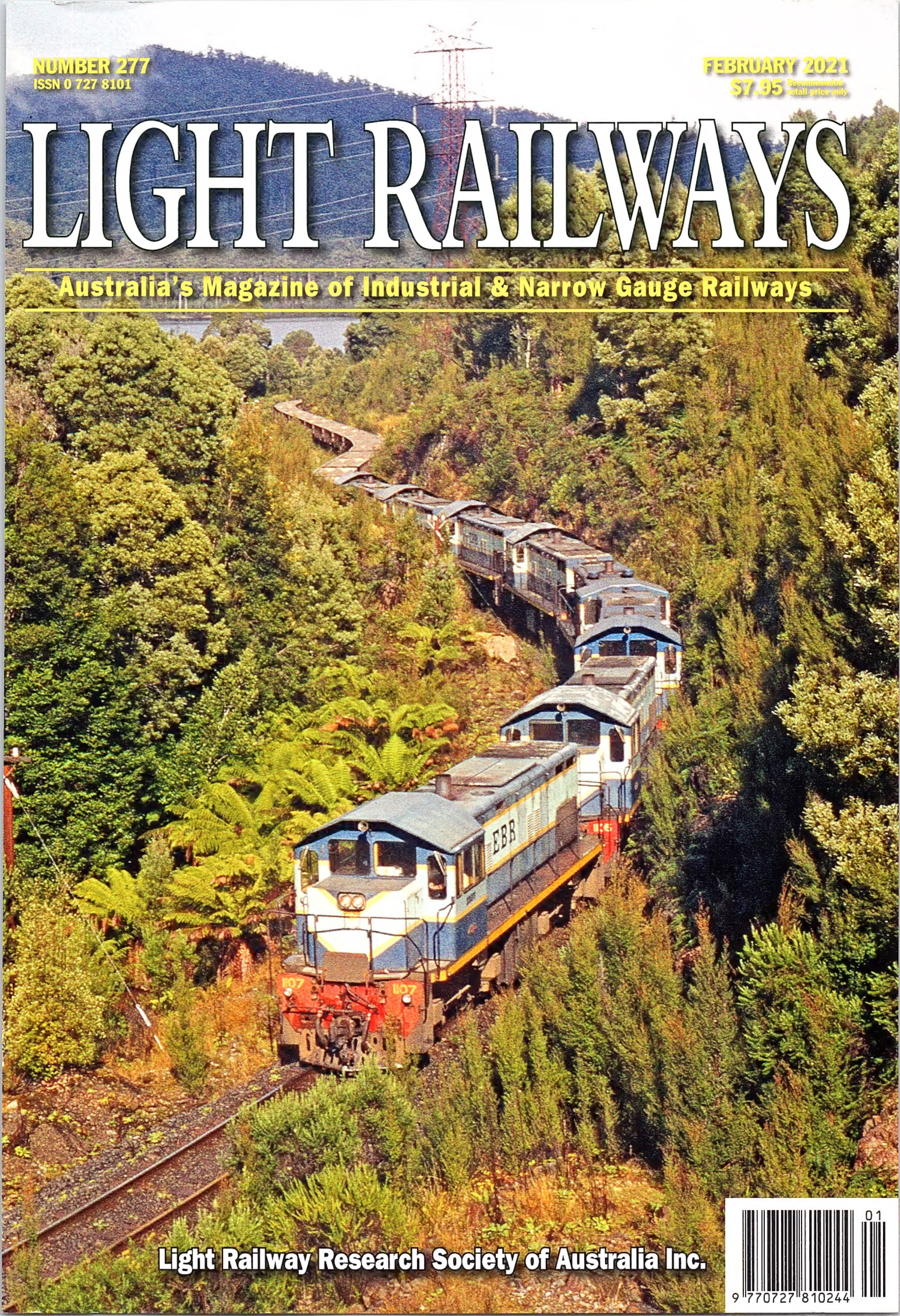
LIGHT RAILWAYS

Australia's Magazine of Industrial & Narrow Gauge Railways



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Imperial to metric conversions:

1 inch (in)	25.40 millimetres
1 foot (ft)	0.30 metre
1 yard (yd)	0.91 metre
1 chain	20.11 metres
1 mile	1.60 kilometres
1 ton	1.01 tonnes
1 pound (lb)	0.454 kilogram
1 acre	0.4 hectare
1 horsepower (hp)	746 Watts
1 gallon	4.536 litres
1 cubic yard	0.765 cubic metres
1 super foot (sawn timber)	0.00236 cubic metre

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Contents

The Bellinger River breakwater story ____ 3
LRRSA turns 60 ____ 15
Yallourn, the early years – part 3 ____ 16
Lewis' ballast siding, Pomborneit, Victoria ____ 24
Looking Back ____ 28
Industrial Railway News ____ 30
Field Reports ____ 36
Letters ____ 40
Heritage & Tourist News ____ 44

Editorial

Welcome to the first edition of the magazine for the year 2021. Let's hope that this year is better than 2020 and that the world can get back to some form of normality.

During this coming year I plan to present a wide variety of articles and news reports from across the country that I have received from a wide range of contributors.

In this edition we present the judges report for the 2019 JLN Southern award for the best article on light railway related topics in that year and we are delighted to report that Phil Rickard won it for his series of articles on the Plateways of Melbourne – congratulations Phil.

As a result of the Covid 19 crisis the LRRSA has had to adapt some of its practices to meet the challenges facing us. One of the things we readily changed was the use of Zoom meetings for both the day to day management of the Society, and the members entertainment meetings. We held the AGM on Zoom last year and in December John Browning made a fascinating presentation on WWI locomotives used in the Queensland cane fields after the war. Details of the next meeting are given in the Society news pages in this edition, and more such meetings are planned throughout the year.

On the book publishing front, we have one ready to go the printers and at least one other is not far away – we will keep you informed of progress and how to purchase them, both in the magazine and on the Facebook Group *Light Railways of Australia*.

Enjoy this edition of *Light Railways*. *Richard Warwick*

Front Cover: *On 16 April 1985 all seven of the Emu Bay Railway's 11 class, assisted by one 10 class, lead a 40-wagon concentrates train from Primrose to Burnie. The train is seen approaching the site of Farrell Siding during a brief sunny break in the West Coast showers. As the train begins its climb out of the Pieman Valley, the quiet of the remote forests is supplanted by the roar of the eight engines echoing from the surrounding hills. The Walkers-built B-B diesel-hydraulic locomotives proved very successful on the EBR: all have subsequently found new homes at preservation and tourist railways. Photo: Colin Harvey*

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The Light Railway Research Society of Australia Inc. was formed in 1961 and caters for those interested in all facets of industrial, private, tourist and narrow gauge railways in this country and its offshore territories, past and present.

Members are actively involved in researching light railways in libraries and archives, interviewing knowledgeable first-hand participants and undertaking field work at industrial sites and in forests.

Light Railways is the official publication of the Society. All articles and illustrations in this publication remain the copyright of the author and publisher. Material submitted is subject to editing, and publication is at the discretion of the Editor.

Articles, letters and photographs of historical and current interest are welcome. Contributions should be double spaced if typed or written. Electronic formats accepted in the common standards.

Material is accepted for publication in *Light Railways* on the proviso that the Society has the right to reprint, with acknowledgement, any material published in Light Railways, or include this material in other Society publications.

The Bellinger River breakwater story

by Ian McNeil

Introduction

The smaller rivers on the NSW North Coast, such as the Bellinger, Nambucca and the Camden Haven, received relatively little investment from NSW colonial governments in the way of harbour works to make their entrances safer for shipping. The bigger rivers such as the Tweed, Richmond, Clarence and the Manning got the lion's share, and the construction of their large breakwater systems often involved substantial railways which attracted the attention of pioneer rail historians.

The construction of breakwaters for the smaller rivers also used railways for the same purposes as their larger neighbours; to transport stone from quarry to river bank, and from crane wharf to breakwater tip face. These railways, though much smaller in scope and seldom reported on during their lifetime, were often little gems in their own right.

The Bellinger River is one such case; as well as horse-worked lines on top of two short breakwaters, its quarry railway featured a unique ex-Sydney steam tram motor and a gravity-worked incline.

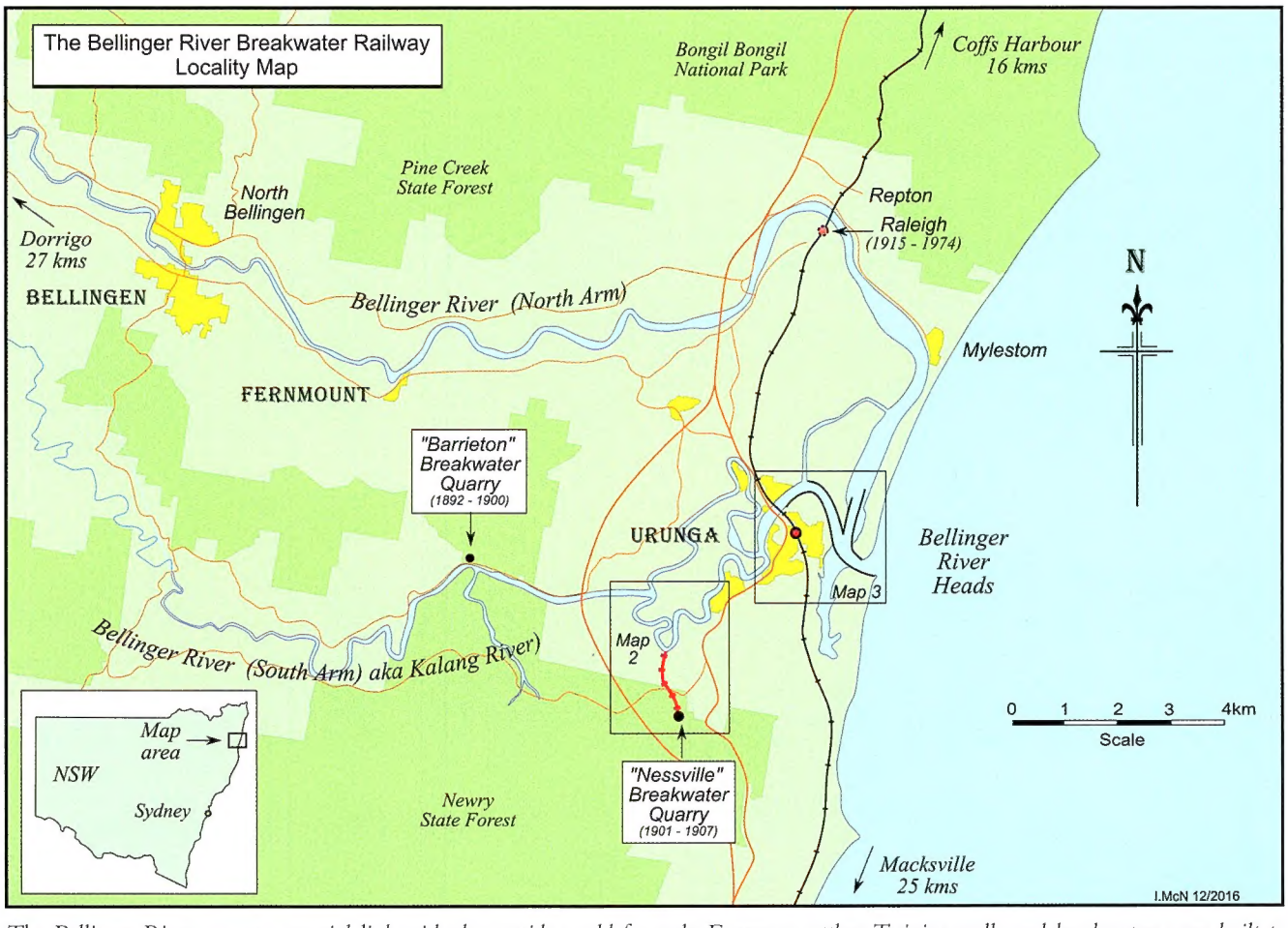
The Bellinger River

The Bellinger River is one of the small rivers on the NSW North Coast, flowing into the sea at Urunga some 370 km north of Sydney. It has two arms which meet one km inside the entrance. The longer 110 km north arm rises under the shadow of Point Lookout on the edge of the Great Dividing Range and flows along the southern flanks of the Dorrigo Plateau. The smaller 75 km south arm, now known as the Kalang River, also has its headwaters in the foothills of the Dividing Range and parallels the north arm for much of its course.

The north arm was the main waterway during the early years of European settlement. Shallow-draught sailing vessels could navigate some 15 km upriver to the village of Fernmount. Flat-bottomed punts could go a further 8 km up-river to the small township of Bellingen.

Transient cedar cutters were the first Europeans to visit the river. They plundered the red cedar stands growing in the riverine forests, shipped their timber to Sydney and then moved on. The first permanent settlers grew maize on the fertile river flats and, after the introduction of paspalum grass in the early 1890s, raised dairy cattle for the production of cream and butter. The large-scale export of softwood timbers such as pine, rosewood and beech developed after the first mountain road, the present-day Waterfall Way, linked Bellingen to the Dorrigo Plateau in 1900.

Imports of settlers' supplies, and exports of timber and agricultural produce to city markets were wholly dependent upon coastal shipping, but the Bellinger River was an unreliable waterway with a treacherous entrance. There was no rocky headland to anchor the river's shallow exit to the sea, and it shifted unpredictably after storms and floods. The relatively weak currents were not strong enough to scour a permanent channel across the shallow off-shore bar;



The Bellinger River was an essential link with the outside world for early European settlers. Training walls and breakwaters were built to improve its unreliable entrance for coastal shipping. The shipping trade dwindled after the North Coast Railway connection to Coffs Harbour opened in 1915, and had all but finished by the mid-1930s.

consequently, shipping was often bar-bound for weeks at a time. Only the smallest class of coastal steamers could trade to the Bellinger, while timber exports depended almost exclusively on ketch- and schooner-rigged flat-bottomed scows. It was not long before the first settlers began petitioning the NSW Government for assistance.

The first government initiatives

The first Government initiative came in August 1868 when a Pilot Station was established on Flagstaff Hill at Bellinger Heads, as Urunga was then known.[1] A tall signal mast was erected on top of the hill and cottages were provided for the Pilot and his boatmen. The Pilot sounded the bar daily and hoisted flags up the signal mast to advise ships if it was safe to enter the river or more ominously, "Bar dangerous, come in at your own risk."

Ten years later the Government provided a subsidised steam tug service for the Bellinger River. Annual tenders were invited for a privately-owned steam-tug of at least 20 hp to tow vessels into and out of the river. The successful tenderer received an annual subsidy - £750 for the Bellinger in 1891 – and the right to charge up to 4d per ton to tow each vessel. The work was hazardous, and several tugs were wrecked on the bar over the years.

In the late 1880s the NSW Public Works Department (PWD) began dredging shallow stretches of the river to improve access for coastal vessels. For the next 40 years one or other of the PWD's fleet of small sand-pump dredges was stationed on the river, battling flood-borne silt deposits and the endless quantities of sand driven into the entrance by the tides.

These initiatives could not control the wandering nature of the river entrance. And even after the successful introduction of large ocean-going bar-dredges - such as the *Antleon*, *Tethys* and *Latona* - little could be done to maintain a navigable channel across the shallow off-shore bar. Overcoming these problems required permanent works in the way of training walls and breakwaters.

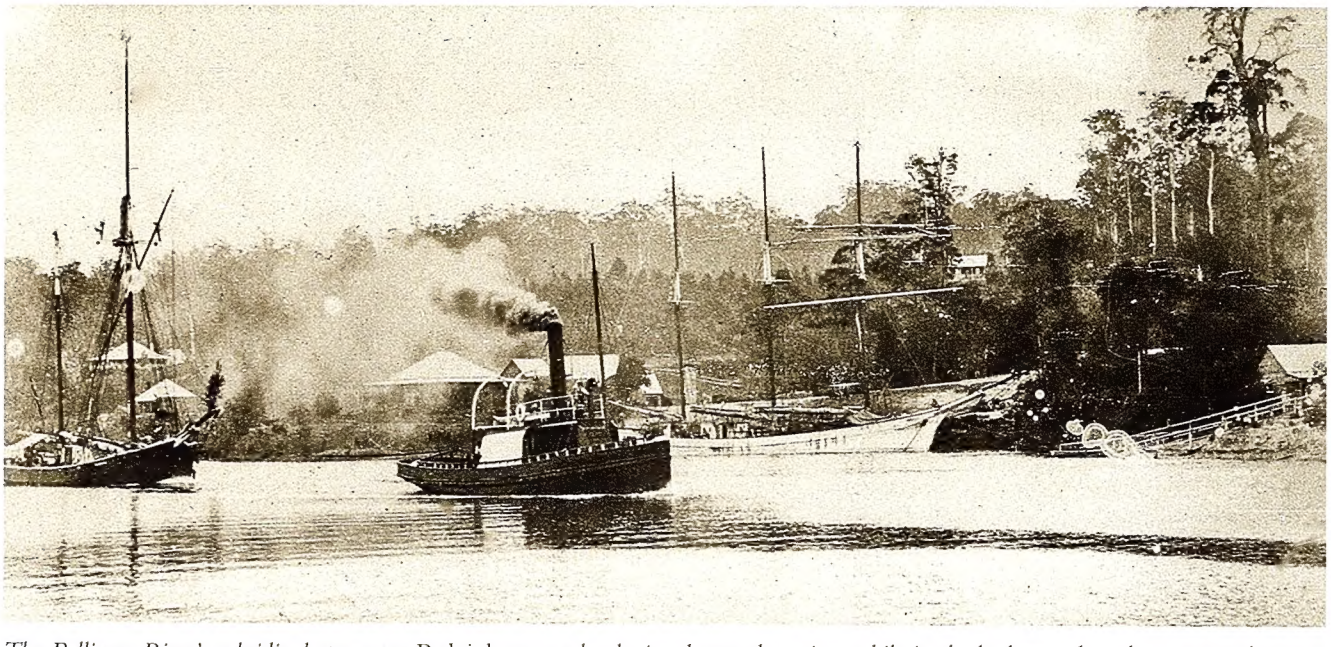
An opportunity to address these problems came in October 1885 when Sir John Coode, the eminent British harbour engineer, made a tour of inspection of NSW river entrances on behalf of the NSW Government. He briefly visited Bellinger Heads and requested that a comprehensive set of soundings, borings and river flow measurements be made on which he would base a river entrance improvement scheme.[2]

Sir John had also requested similar surveys for the larger North Coast rivers – the Richmond, Clarence, Macleay and Manning – and these were given precedence over smaller waterways such as the Bellinger and Nambucca. So it was not until early 1890 that a survey party headed by Commander Francis Howard, a Royal Navy marine surveyor, arrived at Bellinger Heads to begin a six-month survey of the river entrance.[3]

Howard submitted his comprehensive survey report to the PWD in November 1890. He reported that the navigable channel then ran nearly straight out towards the bar, with a well-defined sandbank on the southern side for almost the full distance. He suggested that, if it was desirable to fix the entrance in this position, a concave training wall between the Government Wharf at Bellinger Heads and the outer South Head would have that effect. Such a training wall would also concentrate the scouring force of tidal flows to form a navigable channel, instead of dissipating into the Urunga Lagoon.[4]

He also noted there was no suitable stone for a training wall near the entrance, but there were numerous ballast-heaps scattered around – mostly Sydney sandstone – that had been dumped by sailing ships coming in for cedar cargoes. Collecting these to make about 1000 ft of wall, he said, would probably be the most inexpensive method of construction.

At that time the sandbar across the entrance had shoaled badly, with some vessels driven ashore and others being bar-bound for extended periods. To afford some short-term relief while waiting for Sir John Coode's recommendations, PWD Engineer-in-Chief Cecil Darley recommended the implementation of Howard's suggestion. The PWD secured £5,000 from the 1890 Loan Fund allocation for the work, and in August 1891 sent the grab dredge "*Chi*" and a number of punts to the Bellinger River to begin work. By August 1892 all the available ballast had been recovered and formed into a 400 ft long training wall. The early results were promising; a 15 ft deep channel had formed along the inner face of the wall. Encouraged by the success of the ballast wall, Darley gained



The Bellinger River's subsidised steam-tug Raleigh *tows a ketch-rigged scow downriver, while in the background a schooner-rigged scow is loading timber from a riverside saw mill. These flat-bottomed craft had retractable centre-board keels to enable them to navigate shallow entrance bars. Timber exports dominated the Bellinger River trade in the years leading up to WW1.* *Photo: State Library of NSW*

Barrieton Quarry was on the north bank of the Kalang River, seven miles upriver from Bellinger Heads. Barrie & Cowdery's 10-ton steam lighter, the SS Matilda*, towed punt loads of quarried stone to the training wall construction site at the Heads. A small rail-mounted steam crane was employed to load the punts.* *Photo: Steve Williams*

Ministerial approval to use the remaining £2,800 of Loan Funds to extend the training wall.[5] The tender for the work was awarded to Barrie and Cowdery in September 1892.

Unfortunately Sir John Coode died at home in England that same month, before he could prepare an improvement scheme for the Bellinger River. It was left to Cecil Darley to design a system of training walls and breakwaters to render the entrance safe.

John Barrie and William Reynolds Cowdery

The story of the construction of the Bellinger River training walls and breakwaters is intimately associated with the partnership of John Barrie and William Reynolds Cowdery, the sole contractors during 15 years of on-again, off-again work at the river entrance.

Scottish-born John Barrie began his career as a sub-contractor for railway works that followed the gold rushes. He worked as an inspector of tramway construction, and then turned his attention to construction work for Government engineering contracts. In partnership with William Reynolds Cowdery, an experienced surveyor, he carried out many civil engineering contracts including swamp drainage works along the Richmond and Macleay Rivers. Some of these contracts were undertaken during the long, drawn-out construction of the Bellinger River work, with one or other of the partners resident at Bellinger Heads while the other attended to work elsewhere.

After the completion of their Bellinger River contract in 1906, Barrie and Cowdery went on to carry out tramway construction works in Sydney which included the Bellevue Hill line and extensions to the Crows Nest, Manly and Lilyfield lines. One of their last big contracts was the construction of the second section of the Lockhart to Oaklands Railway during 1910-11.

It was John Barrie's proud boast that in a period of more than 30 years of construction work no workman in his employ lost his life by accident, nor was there any case of serious injury. In the depression of the 1890s, when all other public works lowered the rates of pay by one shilling a day, he refused to lower it on the Bellinger River harbour works on the grounds that he had tendered for the work at the higher rate ruling, and was satisfied with his price.[6]

Barrieton Quarry: 1892 – 1900

Commander Howard did not find any suitable stone in the vicinity of the Heads, only a soft clay-slate that was deemed useless for the training wall construction. However Darley's assistant engineer, H E Carleton, located a deposit of acceptable stone weighing 140 lb per cubic foot some seven miles upriver on the north bank of the Kalang River. It was here that Barrie and Cowdery opened their small Barrieton Quarry on the side of the hill about 100 yards from the water's edge.

A short tramway connected the quarry to a wharf on the river bank. The wharf was made of logs laid pig-sty fashion and filled with rammed earth. The top was some 12 feet above river level to accommodate the rise and fall of the tide as well as the regular freshes. A small travelling steam crane on top of the wharf loaded quarried stone onto punts moored alongside. At one stage Barrie and Cowdery had seven punts in operation, with capacities ranging from 40 to 115 tons of stone. In 1894 they purchased a small steam lighter, the 10-ton SS *Matilda*, from the North Coast Steam Navigation Company for £300 to tow loaded punts to the Heads.[7]

The small settlement of Barrieton near the quarry was home to some 30 workmen and their families. The unofficial mayor was quarry foreman Dan Thompson who also ran the post office. For £15 a year he arranged for mails to be conveyed twice-weekly between Barrieton and the steamer terminus at Fernmount on the Bellinger River. Barrieton Provisional School was established nearby on two acres of land dedicated by the Government in 1897 to educate quarry workers' children and those from surrounding areas.

During its nine-year life, Barrieton Quarry sent some 170,000 tons stone downriver for the construction of training walls at the mouth of the Bellinger River.

The Bellinger River training walls: 1892 – 1900

The Bellinger River entrance was very different to what is seen today. The river meandered between extensive sandbanks and its shallow entrance was flanked by a wide sandy beach on its south side and a long, partly-submerged sand-spit on its northern side.

Cecil Darley designed his river improvement scheme with two aims in mind. Firstly, to permanently anchor the river's exit to the sea in one location and secondly, to form well-defined shipping channels inside the entrance. He specified a set of low-profile, half-tide walls to create 550 ft wide channels inside the river, transforming into more substantial breakwater walls at the entrance.

Half-tide walls go underwater at high tides but have the advantage of concentrating the scouring force of tidal flows into defined channels without hindering the free discharge of destructive volumes of flood waters. They were made of rough-quarried stones dropped onto the river bed to form strong self-interlocking structures that could withstand quite significant punishment from storm waves. Wall-top rail sidings could not be used to construct half-tide walls - which are underwater for lengthy periods – instead workmen typically threw stone overboard from punts.

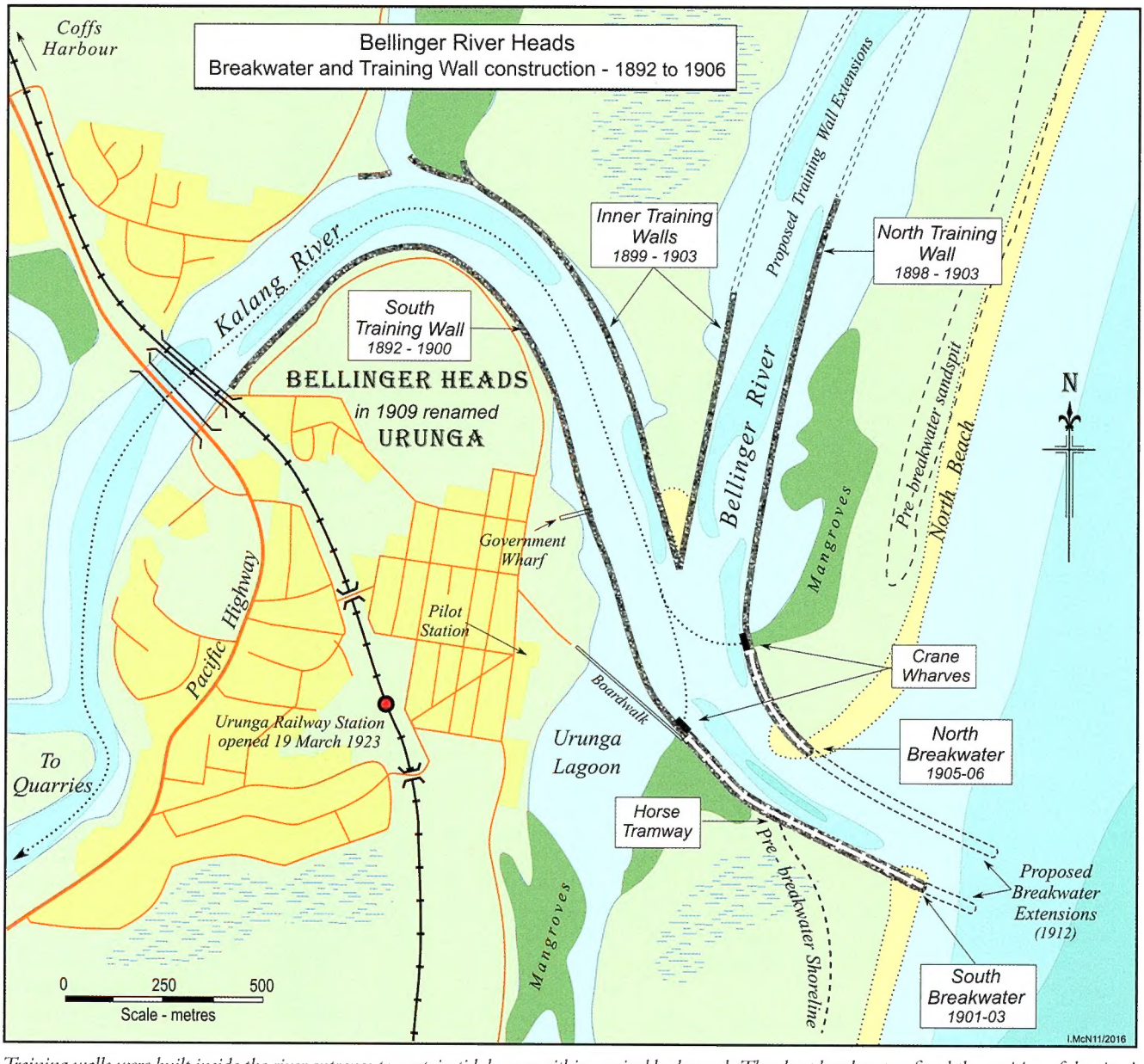
In February 1892 the PWD invited tenders to extend the ballast training wall on the south side of the river. Eleven tenders were received and in September 1892 the contract was awarded to Barrie and Cowdery who quoted the lowest rate of 3s 9d per ton of stone delivered and placed in the wall.[8]

Darley's planned south training wall was over 6,000 ft long. It began near the present-day railway bridge, curved around the top of what is now Urunga golf course, then traced a wide reverse curve across the mouth of Urunga lagoon to end as a short breakwater projecting into the sea.

The first stage of wall construction began at Government Wharf, at the foot of the present-day Bellingen Street, Urunga. Punt loads of stone were towed down river from Barrieton Quarry and moored at the work site where workmen threw their contents overboard to construct the half-tide wall.

Work stopped in April 1893 when the vote of £2,800 had been exhausted. Strong representations were made by residents, businessmen and shipping interests to continue the work. They were successful in making their case, and the Government voted further small sums over the next five years to continue the work.[9]

By January 1898, £33,000 had been spent on the construction of the long 6,300 ft training wall on the south side of the river.



Training walls were built inside the river entrance to contain tidal scour within navigable channels. The short breakwaters fixed the position of the river's exit to the sea, but had no effect on the very shallow off-shore bar and could not prevent huge quantities of sand being driven into the river mouth.

The long curve of the south training wall looking upriver towards Urunga where a steam tug and a schooner are moored at the Government Wharf. The low half-tide wall cut across the mouth of Urunga Lagoon (seen on the left) to concentrate the natural scouring effects of tidal flows within the shipping channel on the right, instead of allowing them to dissipate into the lagoon. Photo: Coffs Harbour Regional Museum

Another 1,600 ft of the training wall had been commenced on the north side of the river. The results of this work were encouraging with a good channel following inside the curve of the southern wall.[10]

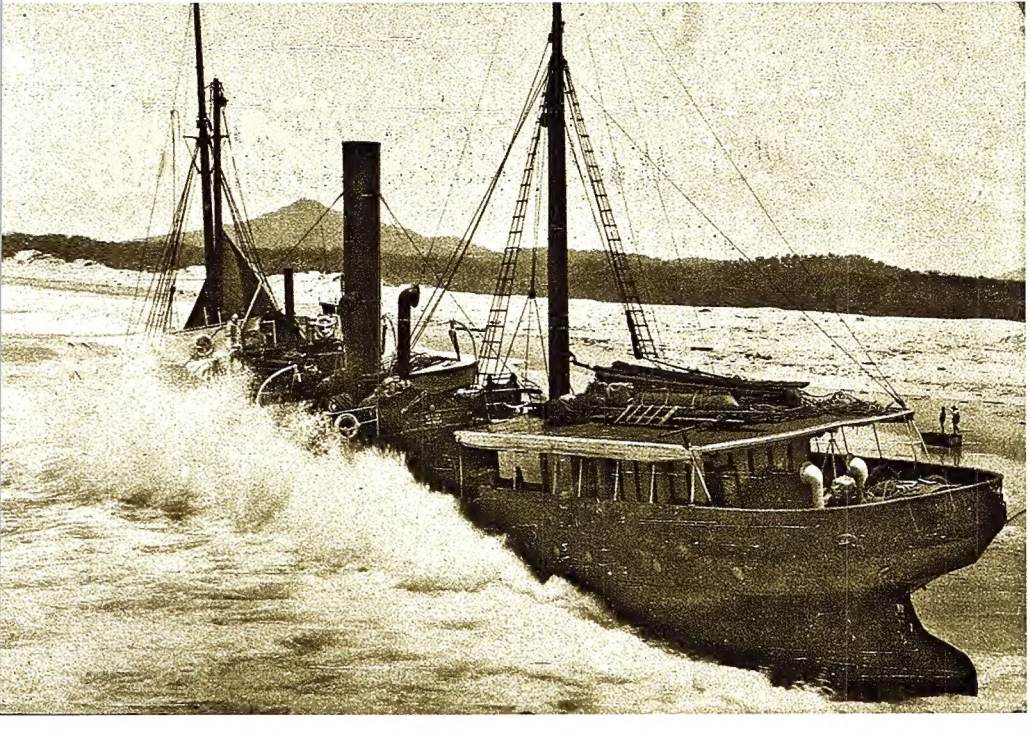
The pace of the work picked up during the next three years as funding was increased. A substantial start was made on the construction of secondary training walls on the northern side to define 550 ft wide shipping channels at the junction of the north and south arms. By the time Barrie and Cowdery's initial contract expired in July 1900, they had placed over 170,000 tons of stone to create 8,500 ft of training walls.[11]

The Bellinger River Harbour Works Act of 1899 [12]

By 1898 the NSW Government had become concerned over the large sums being spent on harbour improvement schemes for the many river entrances along the North Coast. Opponents claimed that the small amount of trade conducted on most rivers did not warrant such excessive capital expenditure. In response, the Government referred harbour improvement schemes for the Tweed, Bellinger, Nambucca, Macleay, Hastings and Manning Rivers to the Parliamentary Standing Committee on Public Works.

During 1898 the Committee conducted public hearings up and down the coast, taking evidence and interviewing expert witnesses. It examined the Bellinger River scheme in April 1898. The key witnesses were the PWD's Under-Secretary Robert Hickson, and Engineer-in-Chief Cecil Darley.

Darley gave evidence that he had designed a complete scheme for the Bellinger entrance that included over 35,800 ft of training walls and breakwaters at an estimated cost of £171,300.



The North Coast Steam Navigation Company's SS Rosedale *was a 274 ton twin-screw steam coaster, specially built for bar harbour work, which regularly traded to the Bellinger River. It had several narrow shaves and groundings on the Bellinger bar, and in January 1909 hit the south breakwater and went aground on nearby south beach with a large hole in the port bow. It was successfully refloated and repaired, but went down with all hands two years later in a gale off Smoky Cape.*
Photo: NSW State Library

However, he recommended that only sufficient temporary works costing £36,000 be carried out which, with the £33,000 already expended, would make the entrance safe.

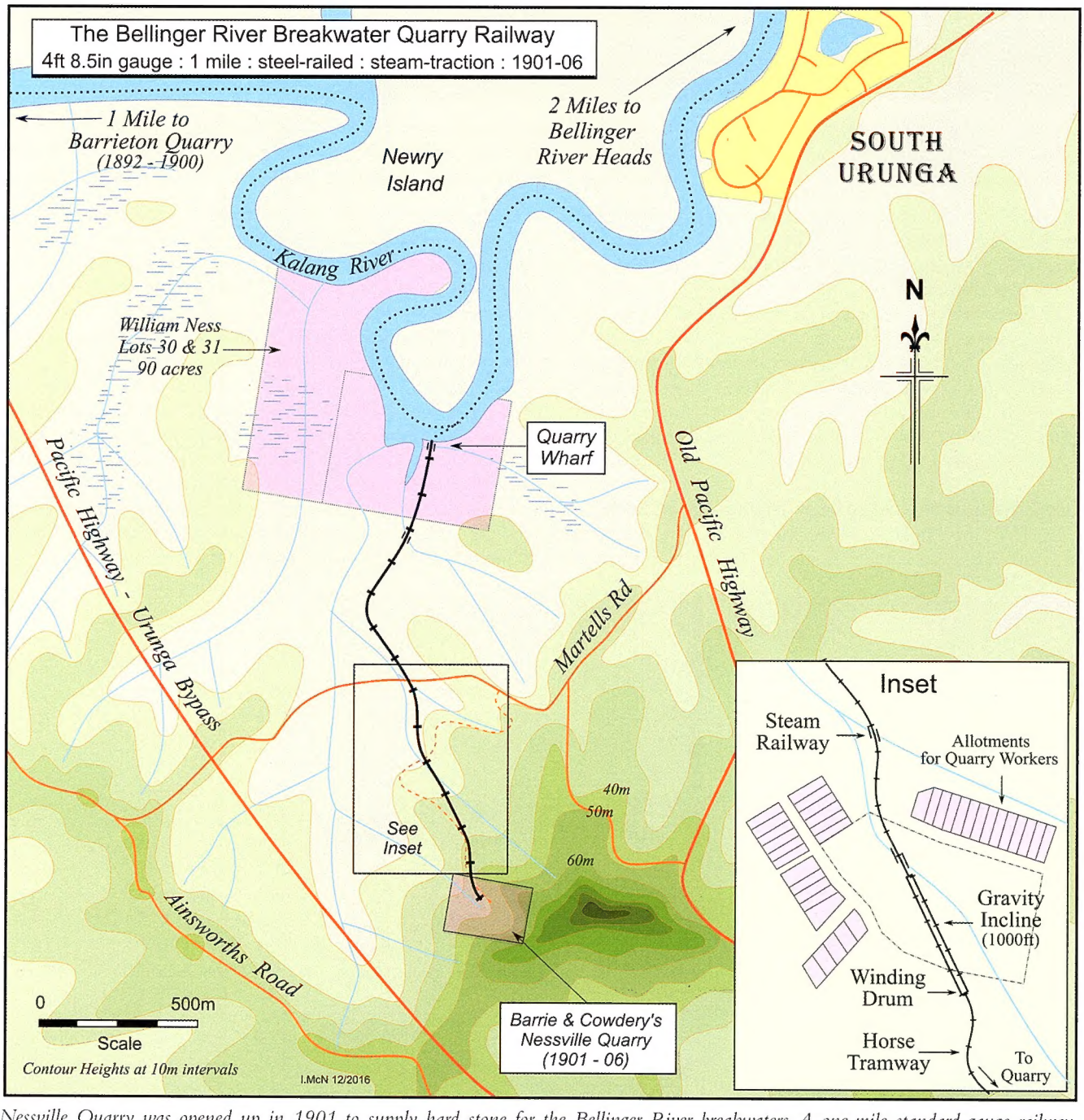
He explained that it was his normal practice to design a complete scheme and then decide how much could be deferred to give sufficient improvement for the present. Then, when a district developed and a better class of steamer was demanded for the trade, the improvement could be effected by extending the work. "I always find it better to do this than to recommend a scheme which cannot be enlarged hereafter."

The Committee found that it had been presented with a virtual *fait accompli*. The works proposed by Darley and seconded by Hickson were, in effect, the final stages of a training wall scheme that was more than half-completed. In its report to the Government the Committee recommended approving Darley's £36,000 temporary works, adding that:

> "the works have already been carried out to such an extent that the Committee is practically compelled to recommend their completion in order that a satisfactory return may be obtained from the expenditure upon them." [13]

The Minister for Public Works accepted the Committee's report and incorporated it into the Bellinger River Harbour Works Bill which he presented to the Parliament in December 1898. It was passed by the Legislative Assembly but was soundly rejected by the Legislative Council, 20 votes to 4, on the grounds that the work was unnecessary, it would prove unproductive, and the country could not afford the expenditure at the present time.

After several rounds of vigorous lobbying and well-supported petitions, the Bill was re-submitted in November 1899, and this time it was passed by both Houses. The Bellinger River Harbour Works Act of 1899 authorised the expenditure of £36,000 on



Nessville Quarry was opened up in 1901 to supply hard stone for the Bellinger River breakwaters. A one-mile standard-gauge railway connected it to a wharf on the Kalang River where stone was loaded onto punts for the journey downriver. A short gravity incline lowered loaded rail trucks from the quarry floor down to the rail head.

a 60 ft extension of the south breakwater, the construction of a 3,000 ft training wall and a 1,070 ft breakwater on the northern side, and 5,750 ft of inner training walls at the junction of the two rivers. The seawards ends of the breakwaters were to be raised 12 feet above the high water mark.

Barrie & Cowdery's 'Nessville' quarry and railway

In March 1900 Barrie and Cowdery were awarded a three-year contract to carry out the works specified in the Bellinger Harbour Works Bill. They lost no time in re-opening their Barrieton Quarry to supply stone for the training walls. The Barrieton stone however was deemed too soft for use in breakwaters exposed to heavy seas. Harder stone was found outcropping on a hillside about two miles closer to Urunga and one mile south of the Kalang River. William Cowdery applied for a 10-acre quarry lease over the outcrop and by January 1901 the contractors had 25 men at work opening up a quarry face at the new site.[14]

The quarry was known informally as Nessville Quarry and the quarry wharf as Ness' Wharf. They were named after William Ness, a steam engineer employed on the Bellinger River steam tug service, who owned 90 acres of river bank land on which the wharf was built and through which the quarry railway ran. Presumably Barrie and Cowdery came to a suitable financial arrangement with Ness for the railway's right-of-way and the quarry wharf site.

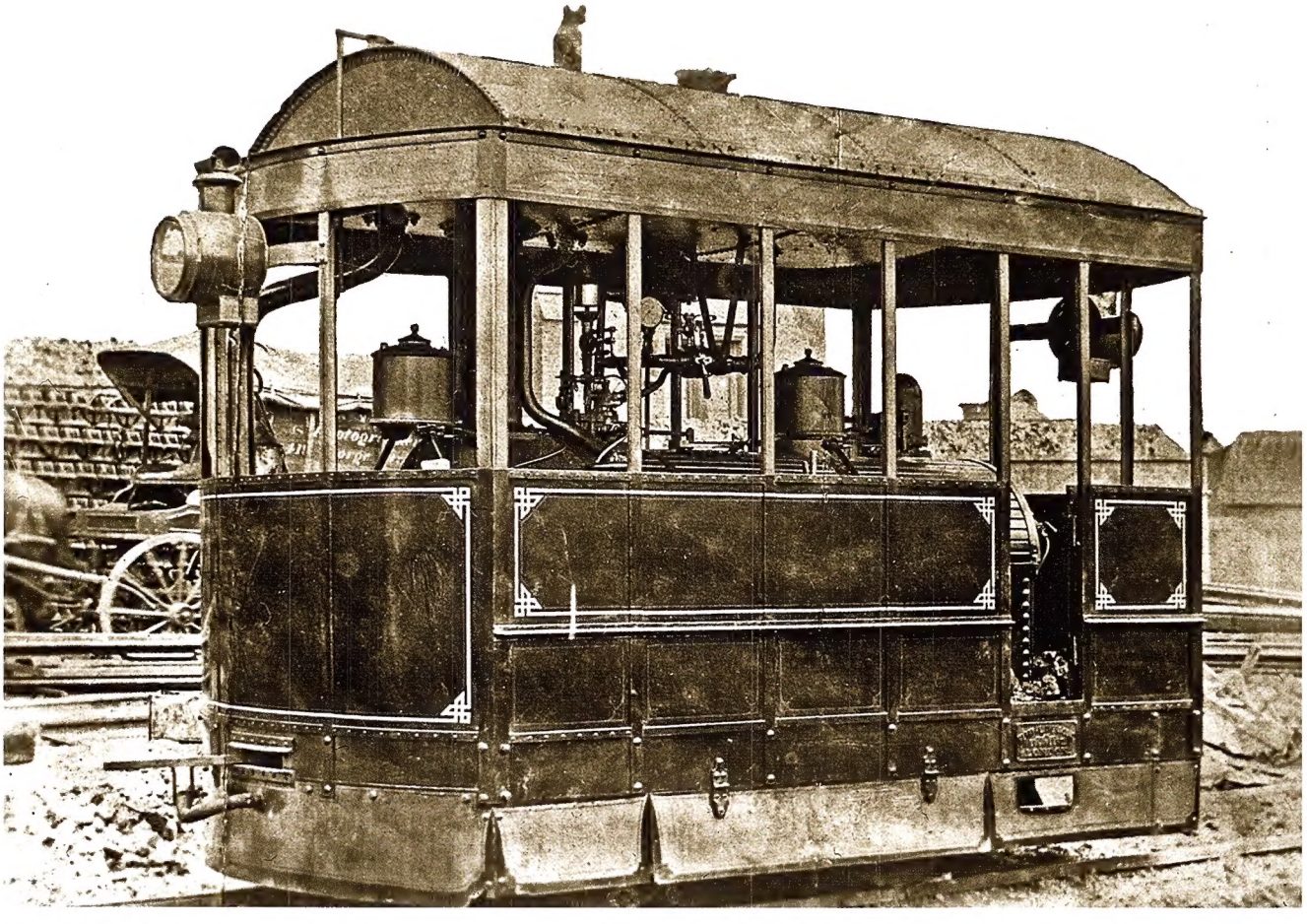
A one-mile steel-railed standard-gauge railway was laid on a low embankment across the intervening flat swampy ground from the river bank to the base of the hill where the quarry was opened up. At the hillside railhead, a 1000 ft long double-track gravity incline climbed up to the level of the quarry floor from whence railway sidings extended into the quarry itself.[15]

The quarry was equipped with 15-ton lifting gear and a 5-ton travelling crane to load stone boulders blasted from the quarry face onto four-wheel stone trucks. Horses were employed to haul trucks to and from the top of the incline. One or more full trucks descending the short incline were used to raise an equivalent number of empties – probably by means of a simple manually-braked horizontal bull-wheel at the top.

One of the few incidents at the quarry to make it into the newspapers occurred in May 1902. A coupling broke when a set of loaded trucks was being lowered down the incline. According to the report:

> "the lot travelled at great pace until the axle on one fortunately broke and arrested their progress. Had this not occurred nothing could have prevented the whole of them rushing into the river and punts." [16]

An ex-Sydney steam tram motor (Merryweather 141 of 1883) took charge of the stone trucks at the base of the incline and hauled them over the one-mile railway to the river bank where a stone loading wharf had been constructed. A 10-ton crane at the wharf loaded either boulders destined for breakwater construction, or skips of small stone destined for training wall construction, into punts which were then towed to the required worksite for unloading. Barrie and Cowdery now had two steam launches to tow stone punts to the Heads and back. They had two 10-ton cranes at the Heads – one on the south breakwater and the second on the north breakwater – to transfer stone from the punts to rail trucks on top of the walls, which horses hauled to the required tip site.



Barrie & Cowdery purchased an ex-Sydney steam tram motor in 1901, Merryweather 141 of 1883, to haul stone from Nessville Quarry to the Kalang River Wharf. The British-built unit was imported by the NSW Government Tramways but proved under-powered for heavy passenger work and spent most of its working life hauling water sprinkler cars around the Sydney system. Photo: Australian Railway Historical Society

Punt loads of stone destined for training wall construction were towed to the required location where stone was thrown overboard by hand.

At the height of operations, some 61 men and seven horses were employed on the works. Barrie and Cowdery's quarry plant was capable of producing 5,000 tons of stone per month but the actual rate was much less. The main difficulty lay in getting loaded stone punts through the shallows and sandbanks to the tip sites and crane wharves. The PWD's sand-pump dredge *Theta* laboured almost continuously to try and keep the channels open.

In a sad reminder of the health hazards that miners and quarry workers were exposed to, quarry foreman Dan Thompson, aged 51, died in Bellingen Hospital in June 1905 from silicosis, then known as "Miner's Consumption." He had worked in the Victorian gold mines for many years and came to the Bellinger with Barrie and Cowdery at the start of the harbour improvement works in 1892.[17]

Merryweather steam tram motor (No 141 of 1883)

Barrie and Cowdery purchased a Sydney steam tram motor, Merryweather 141 of 1883, in late 1901 to haul quarried stone from the base of the quarry incline to Ness' Wharf on the Kalang River one mile away. No. 141 was an 0-4-0T enclosed motor with a horizontal boiler rated for 120 psi, 7½ in diameter by 12 in stroke outside cylinders, and a 4 ft 6 in wheel base. The exhaust steam was condensed by directing it into a large semi-circular water tank mounted on the roof, in compliance with a British Board of Trade edict that exhaust steam could not be released directly to the atmosphere.[18]

No. 141 was manufactured by Merryweather & Sons of Clapham, London, England. It was one of only four English steam tram motors imported by the NSW Government Tramways; the remainder of its extensive fleet being based on the more powerful and reliable steam tram motors supplied by Baldwin Locomotive Works, Philadelphia, USA.

It was imported in mid-1883 through the agency of Mason Bros and landed in Sydney for an all-up cost of £650. It soon proved to be under-powered for heavy passenger working and was classified for goods haulage only by the end of 1883. It spent most of its working life hauling water sprinkler cars around the Sydney system.

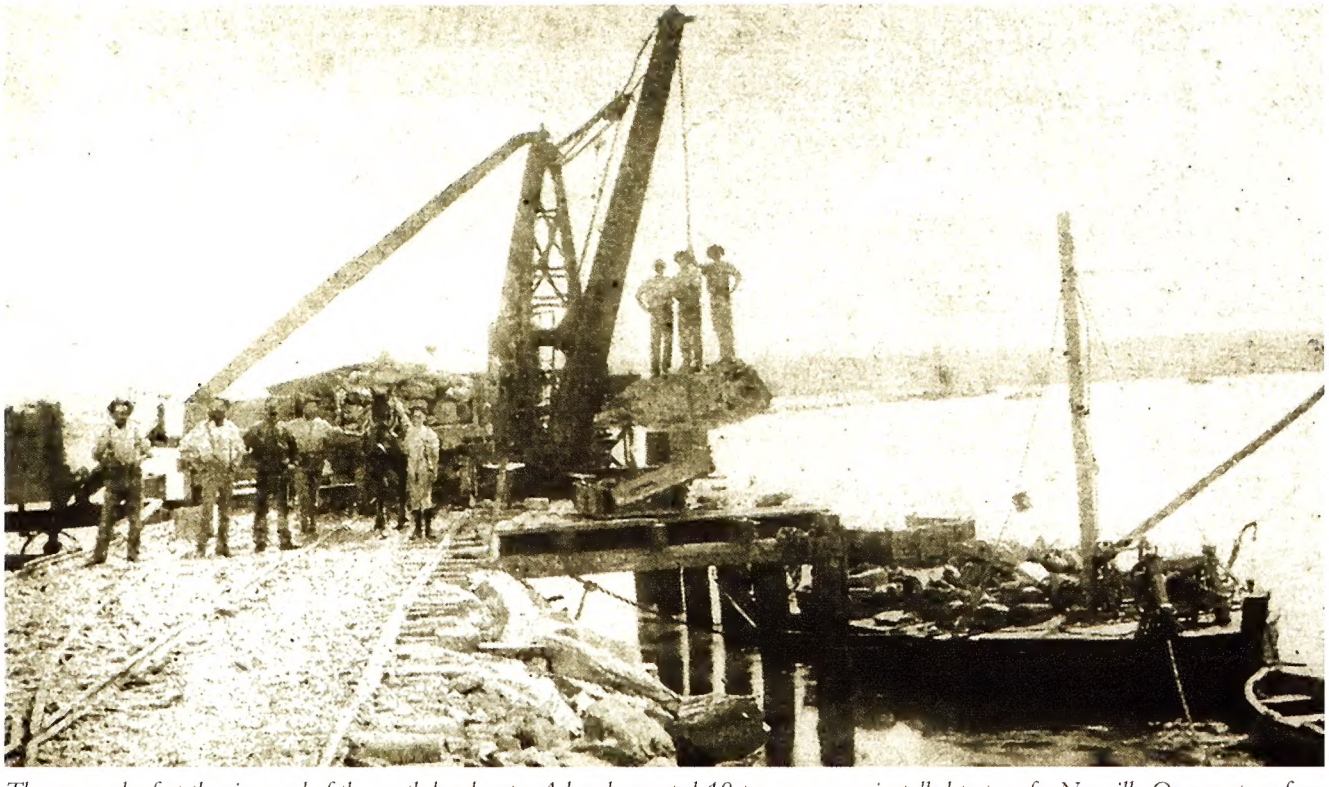
Barrie and Cowdery employed their Merryweather motor on the short breakwater quarry railway from late 1901 to June 1906 when their Bellinger River training wall and breakwater contract was completed. The haulage task would have been within even the limited capabilities of the small steam tram motor. The quarry line crossed flat swampy terrain on a slight 1 in 175 uphill grade from the quarry wharf to the base of the quarry incline. Each trip back to the wharf consisted of no more than half-a-dozen loaded quarry trucks grossing about 8 tons each on a slight downhill grade.

In April 1907 Barrie and Cowdery won a large contract to construct the Bellevue electric tramway in Sydney.[19] The following month the steam coaster SS *Duranbah* was recorded as loading a large quantity of rails and trucks at the quarry wharf for shipment to Sydney.[20] Presumably the Merryweather tram motor was included in the shipment and was put to work on the Bellevue tramway construction project. Soon after completing this contract, Barrie and Cowdery were engaged to construct extensions to three North Sydney tramway lines between Crows Nest and McMahon's Point, and again it is possible the Merryweather unit saw service on these contracts.

In September 1910 Barrie and Cowdery were the successful tenderers for the construction of the second section of the branch railway from The Rock to Oaklands in the NSW Riverina, between Lockhart and Clear Hills.[21] This task was probably beyond the capabilities of the small Merryweather unit and its subsequent fate is unknown.

Bellinger River Breakwater construction: 1900 – 1906

While Nessville Quarry was being opened up to supply stone for breakwater construction, Barrie and Cowdery continued to produce stone from Barrieton Quarry to repair and top up the existing training walls.



The crane wharf at the river end of the south breakwater. A hand-operated 10-ton crane was installed to transfer Nessville Quarry stone from punts to standard-gauge tipping wagons which horses hauled the short distance to the breakwater tip face. *Photo: Steve Williams*

An aerial view of the Bellinger River entrance. The north and south breakwaters originally projected into the sea but tide-borne sand quickly accumulated behind them, extending the coastline seaward and spilling round into the river mouth. Dredging ceased in the 1930s and the shallow entrance now requires expert knowledge to bring even the lightest craft safely across the bar.

From mid-1901 onwards all the stone used came from Nessville Quarry. It was a better class of stone for which the contractors were paid under a two tier system. "A-class" stone consisting of blocks of all sizes up to half a ton weight, mainly used for training wall construction, was paid for at three shillings per ton. "B-class" stone consisting of stone blocks half-a-ton and upwards with 50% having to be five tons and over, mainly used for breakwater construction, was paid for at four shillings and sixpence per ton.[22]

Over the next two years the lion's share of "B-class" stone produced went to construct the southern breakwater. This involved widening the seaward portion of the existing half-tide training wall by 16 feet and raising it up to 12 feet above the high water mark. A timber crane wharf was constructed alongside the wall half-a-mile back from the seaward end, and a 10-ton capacity crane installed on top. Punts carrying boulders and skips of smaller stone moored alongside the crane wharf. The crane transferred the stone onto trucks on the railway siding on top of the wall for horses to haul to the tip face.

Barrie and Cowdery's three-year contract under the Bellinger River Harbour Works Act expired on 30 June 1903 during which time they had made substantial progress on the southern breakwater though it was incomplete. Construction of the short northern breakwater had not yet been started.[23]

A general shortage of Loan Funds halted further construction work for nearly 12 months, and it was not until July 1904 that Barrie and Cowdery were granted an extension of their contract to complete the authorised works. Expenditure was initially limited to £450 a month which hamstrung early progress. In the interim the newly-constructed south breakwater suffered significant subsidence to the extent that the rail line on the top was in danger of toppling into the water. There was also a serious wash-away on the northern training wall allowing flood tides to get in behind the wall and threaten to isolate it.

The financial situation improved in 1905 enabling repairs to the southern breakwater and the northern training walls to be carried out and the short 1,152 ft northern breakwater to be constructed. As was the case with the southern breakwater, a crane wharf was built and a 10-ton crane installed on top. It lifted stone off the punts and placed it on rail trucks for horses to haul to the tip face.

The Bellinger River's south breakwater under construction in September 1905 with the crane wharf visible on the near end. The breakwater horse-tramway extended seawards from the crane wharf. The scene has changed dramatically in the intervening years, with tide-borne sand extending the coast out to the ends of both breakwaters and a healthy covering of vegetation establishing itself. Photo: NSW State Library

No further work on the Bellinger Heads training walls and breakwaters was done after 18 June 1906 when the limit of expenditure authorised by the Harbour Works Act was reached.[24] Barrie and Cowdery held an auction sale in the same month to dispose of unwanted stores and plant as well as all of William Cowdery's household effects.[25] It is not known how the heavy quarry plant was disposed of, but the rails and trucks from the quarry were shipped to Sydney on board the SS *Duranbah* in March 1907 to be used on their new tramway construction contract.[26]

The NSW North Coast railway

The Bellinger River training walls had successfully created shipping channels inside the entrance, and the two short breakwaters had fixed the position of the river's exit to the sea. But neither had any effect on the shallow off-shore bar, and they could not prevent large quantities of sand from being driven into the river mouth during heavy seas and storms. Vessels were sometimes bar-bound for weeks at a time, waiting for a strong fresh to surge down-river and flush out the shallow bar. The

An unidentified steam locomotive (possibly one of the PWD's 0-4-0 Manning Wardle saddle-tanks) heads a spoil train through rough country near Coffs Harbour during the construction of the NSW North Coast Railway. The decision to build this expensive rail link marked the end of any further investment on river-mouth improvement schemes for North Coast rivers. Photo: Coffs Harbour Regional Museum

The 1911-built bar-dredge Latona *at work in the Bellinger River entrance channel c1920. The unprotected river mouth required frequent dredging to keep it open for small ships. When the entrance bar became too shallow for the dredges to work, trapped vessels had to wait, sometimes for months, for a strong fresh to come down river and flush out the bar.* *Photo: State Library of NSW*

PWD kept a sand-pump dredge stationed on the river for inside work, but only ocean-going bar dredges could successfully tackle the demanding task of dredging off-shore bars. And on many occasions the Bellinger bar was too shallow for the PWD's specialist dredges – *Antleon*, *Tethys* and *Latona* - to work on it.

Timber exports from the Bellinger River increased dramatically between 1902 and 1912, from 750,000 to over 12 million super feet per year. Mill owners and shipping interests complained about the lengthy delays to shipping caused by the shallow bar. They pressed the NSW Government to complete the breakwaters designed by Cecil Darley a decade earlier and now estimated to cost over £150,000.

In 1912 the Government referred their concerns to the Parliamentary Standing Committee[27] that was taking evidence on the proposed all-weather deep-water port at nearby Coffs Harbour. The Committee was advised by PWD engineers that no matter how much money was spent on breakwaters on the Bellinger, the result would still be a bad bar because of the wide-open and completely unprotected nature of the entrance. It concluded that:

> "In view of the construction of the North Coast Railway and the excellent facilities which it is proposed to give for shipping at Coffs Harbour – 13 miles distant – expenditure cannot be recommended on the improvement of an entrance which has no natural advantages and does not lend itself in any way whatever to harbour construction."

In fact, the decision to cease further capital expenditure on North Coast river entrances had been made several years earlier when the NSW Government passed the North Coast Railway Act in November 1906. The Act authorised the construction of a 500 km railway from Maitland to Grafton which would link up many of the isolated coastal river towns and thereby reduce their reliance on hazardous river entrances.

By the time the Committee issued its report in 1913, the first section of the North Coast Railway between Maitland and Dungog had been open for traffic since 1911; the second Section between Dungog and Taree had just been opened, and construction of the third and fourth sections, to Wauchope and Kempsey respectively, were well under way. The isolated northern part of the railway had been completed considerably earlier: Murwillumbah had been linked the Lismore in 1894, and the line had been extended south to Casino in 1903 and then down to Grafton in 1905.

The development of Coffs Harbour as an all-weather deep-sea port brought forward the construction of the isolated seventh section of the railway between Coffs Harbour and Nambucca Heads to act as a feeder line. The first 20 km to Raleigh, on the north arm of the Bellinger River, was opened for traffic in August 1915.[28] The remaining 37 km to Nambucca Heads did not open until March 1923.

In view of the importance of the timber trade, the Committee did recommend that the Bellinger River be kept open for vessels of light draught through the continuation of dredging, the cost of which was running at about £2,300 a year. It noted:

> "Timber can be handled in flat-bottomed scows out of the Bellinger when the steamers of deeper draught could not attempt an entrance, and the timber trade does not suffer by delay as is the case with perishable goods. It is a trade also which must inevitably fall off in time, while the agricultural interest will increase from day to day."

When the railway to Raleigh opened for traffic in 1915 it provided an alternative access for Bellinger produce to the superior port facilities at Coffs Harbour. And after the railway bridge across the river at Raleigh was built in 1922, no large vessels could go upriver past this point. Bellinger River shipping slowly declined from a peak of 221 vessels arriving in 1912 to only 12 recorded in 1932 and just three in 1933. Dredging operations ceased in 1930 and the pilot service was withdrawn after the tug *Repton* was wrecked on the breakwall in 1933. Since then the estuary has only been used for recreation and fishing.

The south training wall curves across the mouth of Urunga Lagoon and merges into the more substantial bulk of the South Breakwater. The Urunga Boardwalk crosses tidal flats then follows the path of the old horse railway on top of the breakwater. On the left is the tip of the short North Breakwater with a sand-spit that now extends half-way across the river entrance. *Photo: Ian McNeil*

The Urunga Boardwalk

Following the completion of the breakwaters in 1906, an acetylene light was installed at the end of the South Breakwater as a navigation aid to guide ships into the river mouth. The Pilot and his boatmen built a rough footbridge across the mouth of Urunga Lagoon to enable them to tend the light under all weather and tidal conditions. When required, the acetylene lamp was lit at dusk and extinguished at dawn. The footbridge was a spidery contraption consisting of a series of narrow planks supported on unevenly spaced piers.

Local volunteers constructed an improved footbridge in 1922; it was two planks wide and also boasted a handrail. Bellingen Shire Council replaced it in 1940 with a more substantial structure that cost £700. Sixty 20 ft spans carried a four-foot wide walkway across the 1200 ft gap between the shore and the South Breakwater.

The modern boardwalk dates back to the Bicentennial year of 1988 when the first 400 metre length was constructed about five metres north of the old footbridge, some of the old piers of which can still be seen. A 240 metre extension was added in 1999, and in 2010 the boardwalk was extended another 360 metres along the top of the breakwater to South Beach where a viewing platform was built.

The boardwalk is popular with residents and visitors alike with many using it for their daily exercise while enjoying bracing views of the Bellinger River entrance. Very few though would realise that they are following the route of the old breakwater railway, along which Barrie and Cowdery's draught horses strained to haul five ton boulders to the tip face over a hundred years ago.

Acknowledgements

My grateful thanks go to Ian O'Hearn, Urunga, and Steve Williams, Bellingen, for research and field assistance. Thanks are also due to LRRSA members John Browning, Bruce Macdonald and Richard Horne for Merryweather steam tram motor research.

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LRRSA turns 60

In February 2021 the LRRSA turns 60 years old. During those 60 years, amongst many other things, we have achieved the following:

277 editions of *Light Railways* magazine.

33 books and booklets covering light railways and their place in our history.

121 editions of *Light Railway News* (from 1977 to December 1997).

124 tours and site visits to areas of light-railways interest across Australia.

950 (approximately) entertainment meetings held in Melbourne, Sydney, Brisbane and Adelaide, plus a few elsewhere.

656 current members of the LRRSA

2200 (approximately – it just keeps growing!) members of the Facebook Group *Light Railways of Australia*

The Society was formed at a meeting of five interested persons in Melbourne on 12 February 1961 and was initially known as the Victorian Light Railway Research Society reflecting the then members' location and interest in the logging tramways in the hills to the east of Melbourne. The group agreed to formalise the formation of the Society, prepared a Constitution and published a newsletter that was originally called the *Quarterly Review*. In 1963 the name of the newsletter was changed to *Light Railways* but after issue No.14 an interregnum of several years occurred, mainly due to changing interests and insufficient available time (university studies!) by its rather young personnel. This almost saw the society fold.

By early 1966, however, matters changed and the society was revived – quite spectacularly and the magazine's publication became more regular and the contents developed into more detailed histories of light railway lines across Australia. Soon afterwards, the name of the Society was changed to the Light Railway Research Society of Australia to reflect the wider area of interest.

In 1974 the Society published its first book titled *Tall Timbers and Tramways* which was a photographic survey covering the timber tramways in Victoria. The publication of this book proved to be very successful.

The NSW Division was formed in 1976 and groups in other states followed later: South Australia in 1983 and Queensland in 1988.

In 1977 John Browning offered to publish a separate magazine titled *Light Railway News* that covered the heritage and tourist activities and also the industrial railway news from across Australia, but predominately the sugar cane tramways in Queensland - this offer was readily accepted and the magazine continued until 1997 when it was subsumed back into the *Light Railways* magazine.

After not having any one person fill the role of the Editor of *Light Railways* magazine for quite some time, in 1980 Bob McKillop took over and developed the journal into a regular, high quality and authoritative magazine.

In February 1998 Bruce Belbin became the Editor of LR and the format of the magazine was changed to A4 size, and it still remains so today though the numbers of pages has steadily increased.

Ten years ago the LRRSA celebrated its 50th birthday and a booklet titled *LRRSA Fiftieth Anniversary 1961 to 2011* was published setting out the detailed history of the Society including many photos from past activities. This booklet is now available as a free download from our website at lrrsa.org.au.

As you can see, we have achieved a huge amount in the last 60 years and we are now stronger than ever, and looking forward to the next 60 years. However, a major challenge for the Society going forward is the aging Council and Editorial teams and there is an opportunity to get new people involved and to take on roles in the Society's administration if it is to survive. If you would be interested in getting involved in one of the many roles in the Society please let the Secretary know at secretary@lrrsa.org.au.

Power House. *Following the turning of the first sod in November 1920, initial works included the removal of trees and scrub and preparation of the site selected for the boiler house, turbine house, transformer and switch yard.* The Age *of 29 October 1921 describes the scenes shown here. These sites required the excavation of a hill, which closely abutted the river, down to basement level. Several hundred thousand cubic yards of material were dug out using the Ruston Proctor steam shovel hired from the Commonwealth Government. Up to 700 cubic yards per day could be dug out in fine weather, the material being used to form a levee bank along the south bank of the river and a railway embankment.*
Photo: State Library of Victoria (SLV) H2009-18/403

Yallourn, the early years – part 3

by Phil Rickard

The Centenary of the SECV

In the first two parts of this occasional pictorial series, we looked at the Great Morwell mine on the north side of the La Trobe River. This covered the period from 1890 until April 1923 when the mine and its operation were absorbed into the State Electricity Commission of Victoria. [Part 1 - LR 252, December 2016; Part 2 – LR 275, October 2020]

In 1918, when the Victorian government finally decided to enter the business of generating electricity at a central generating station using brown coal, a number of part-time Commissioners were appointed to conduct the necessary investigations. It soon became apparent that the scope of the undertaking envisaged (the "Morwell Scheme") required more than part-timers and in 1920 an act of parliament created the State Electricity Commission of Victoria, to come into effect on 1 January 1921. Sir John Monash was appointed as the permanent Chairman of Commissioners.

The SEC's remit included (not exclusively):

- To burn Yallourn brown coal, on-site, in a purpose-built power station, generate electricity and reticulate that to (initially) Melbourne; and
- Utilise Yallourn brown coal to make briquettes for domestic and industrial usage.

Initial actions included ordering excavating machinery from the United States such as could not be obtained locally. This included two large revolving shovels, one to excavate the overburden, the other for coal winning. Two Bucyrus Shovels, of 2½ and 3½ cubic yard capacity were obtained at a cost of around £58,000 delivered on site. By 1921, a Ruston Proctor steam shovel (obtained from the Commonwealth Government in October 1920) had been erected and started to clear the area to be excavated and make an inclined approach through the overburden to reach the surface of the coal layer. Initial movement of overburden was by horse drays and horse-drawn rail trucks, later supplemented by rail-mounted conveyors and a boom-stacker.

The actual coal from the shovel was to be transported from the open cut to the crushing and screening plant by skips on an endless rope haulage (No.1 Ropeway). Such a system was ordered from the Mead-Morrison Manufacturing Co in the USA at a cost of £31,225 ex works.

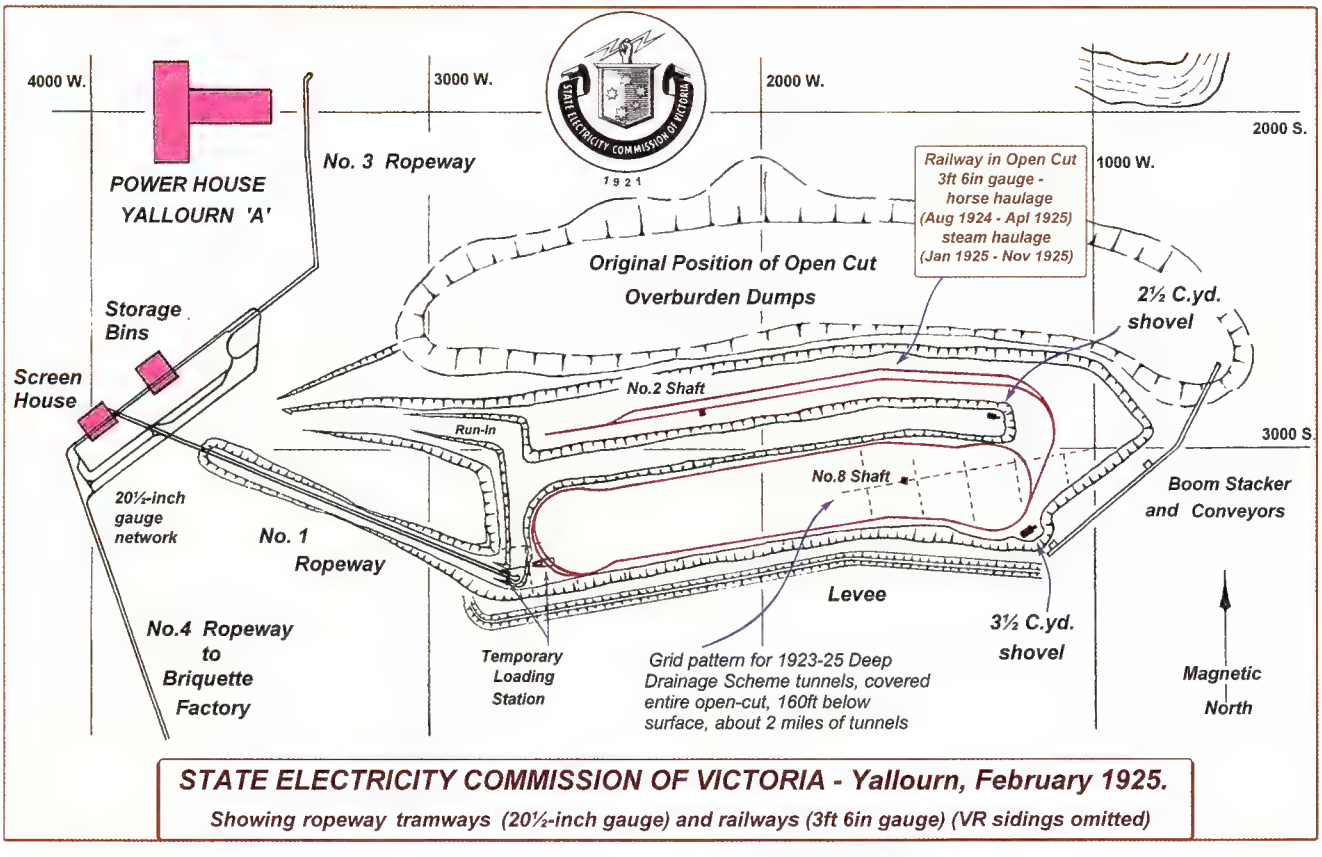
By 1921, a temporary power plant (TPP) was erected next to the existing railway from Herne's Oak to the Great Morwell mine, just south of the exchange sidings near the La Trobe River. It enabled coal from the Great Morwell mine to be tested on a travelling grate made by the Underfeed Stoker Company – this proved satisfactory, and to provide electricity to the works site. The TPP was accessed by a short siding for the delivery of coal. Other testing at the TPP included a coal drier, attached to a Babcock and Wilcox boiler, the object being to use the waste gases from the furnace to dry the raw brown coal on its way to the furnace.

In relation to briquetting, Hyman Herman (formerly Director of Geological Survey in the Mines Dept) became Engineer for Briquetting and Research in the SEC. By 1921 he was in Europe, particularly Germany, to investigate the latest briquetting practices. Morwell brown coal was analysed by German engineers and found to be at least equal to the best German brown coals. Herman recommended that the plant required for briquetting be ordered from Germany and tenders were called for a factory with five presses, to have an output of 96,000 tons per year.

Power House. *Part of the levee doubled as a railway embankment and would be used for five VR sidings, the relocated VR line and, later the SEC electric railway to the Great Morwell mine. The levee was built to a height of over three feet above the highest recorded La Trobe River flood. In this pair of photos we see Western dump trucks being hauled by a one hp equine, plodding continually around an endless path – steam shovel to embankment and back. Gauge is two feet.* The Age *reporter (mentioned in the previous photo) noted that the horses and trucks could not keep pace with the shovel, which as a result, was given an occasional spell!* *Photo: SLV H2009-18/183*

As the location of the 'Morwell Scheme' was over four miles from both Morwell and Moe, much supporting construction work was required, including housing and township facilities, a railway line from the existing Great Morwell mine branch, a stone quarry with connecting tramline to the power station site, a brick works and brick presses, kilns etc; roads, railway station, sidings, levee bank along the La Trobe River, drainage channels, pumps, a weir on the river and various other works.

Despite the introduction of various items of machinery, there was much use of less-advanced technology, like horses and carts, and temporary tramways with side-tipping skips. The accompanying photos show but a fraction of the initial works during the early part of Yallourn's first seven years, prior to the introduction of the 900mm-gauge electric railways in late 1927. Part 4 will continue to cover the first seven years, mainly the later part of that period.

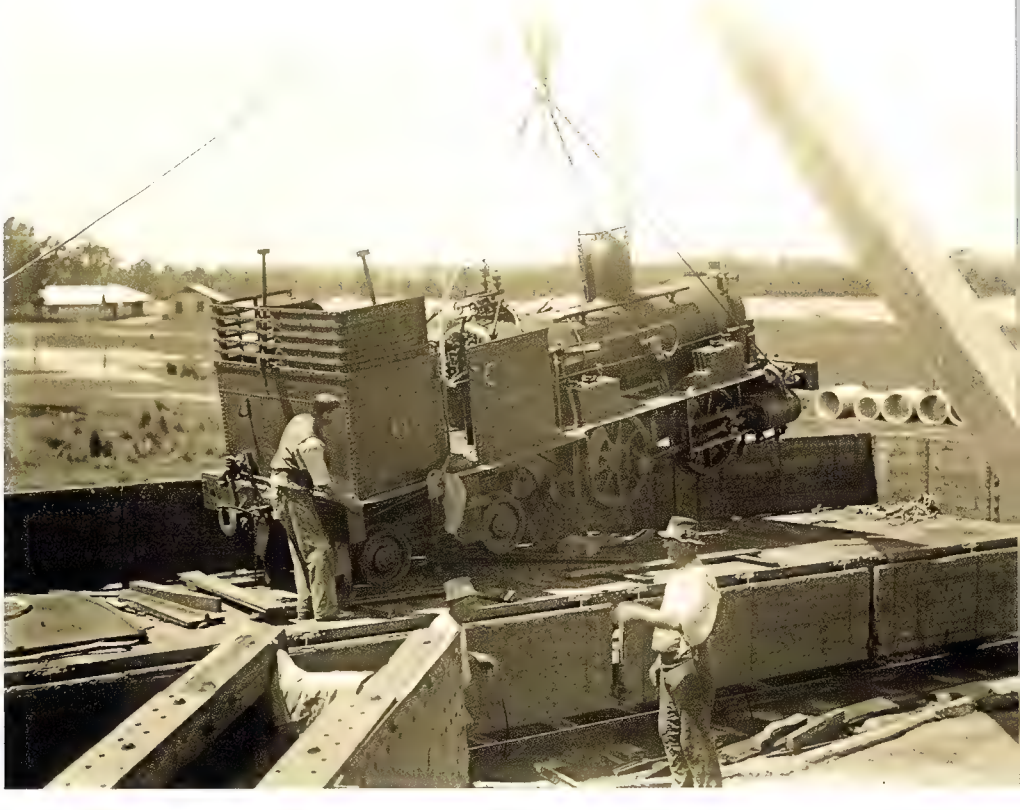


STATE ELECTRICITY COMMISSION OF VICTORIA - Yallourn, February 1925.

Showing ropeway tramways (20½-inch gauge) and railways (3ft 6in gauge) (VR sidings omitted)

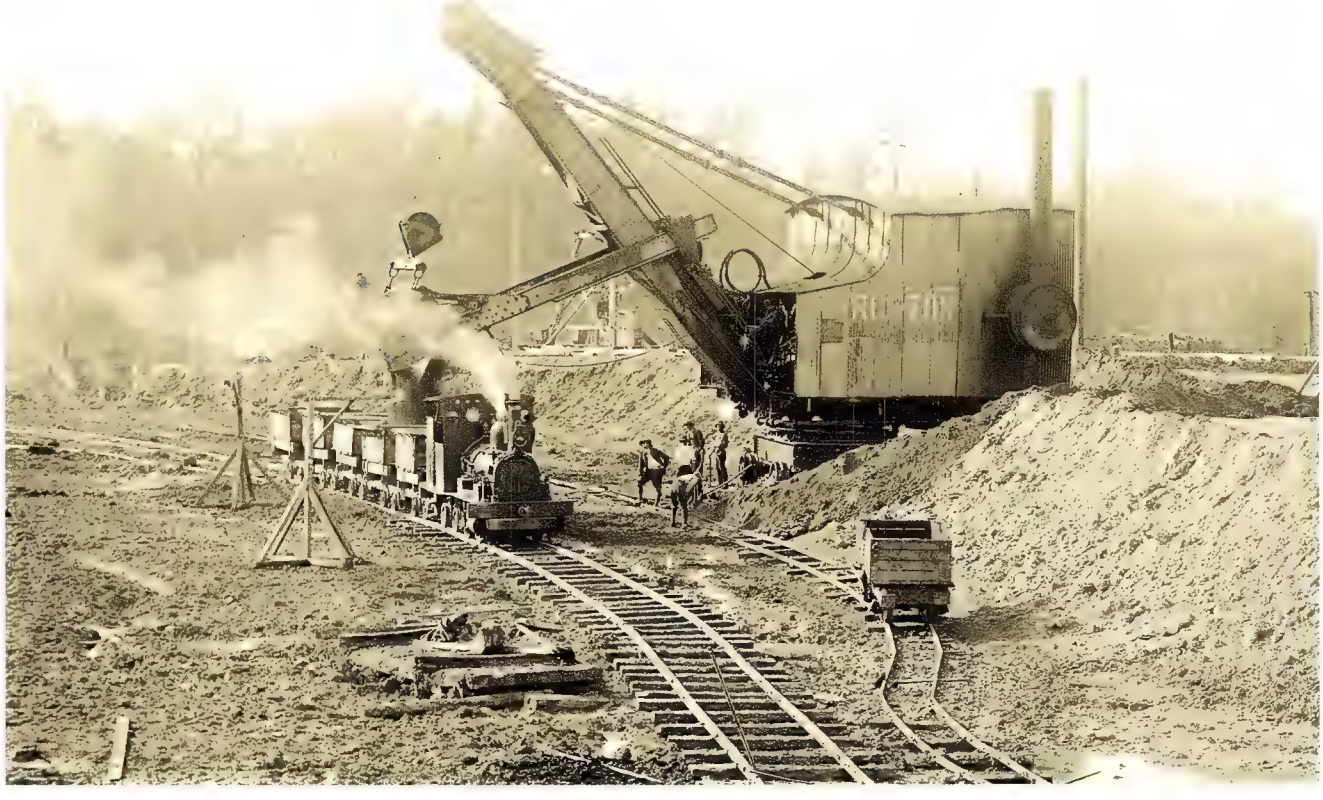
Steam shovel. *The dexterity and precision with which the driver of the Ruston Proctor steam shovel could handle his machine impressed many visiting journalists. It was the first large machine on site, arriving in October 1920, though not assembled and working until February 1921. The shovel, which could dig about 3½ tons per bite, appears in many early images variously loading 2 ft-gauge side-tipping skips (pictured), Western dump trucks or horse-drawn drays.* *Photo: SLV H2009-8/132*

Steam locomotive arriving. *Originally purchased by the South Australian Railways in 1876, the diminutive V-class 0-4-4 back tank No.10 (Beyer Peacock 1598/1876) was hired by the SEC for 12 months, from October 1921. Here we see the newly-arrived No.10 being unloaded from a VR truck at the Eastern Camp sidings near the TPP. One presumes that V 10's cab and funnel were removed in order that the loco fit the Victorian and South Australian loading gauges. Most large items came in by rail via the old Great Morwell mine's branch line from Herne's Oak. One presumes No.10 was put onto temporary 3 ft 6 in-gauge tracks – there were also many 2ft-gauge lines from the sidings, used to get items to their ultimate destination around the large Yallourn site.*
Photo: SLV H2009-18/371



Above: Brick Works. *10 Jan 1923. The brickworks were built near the briquette factory, where a satisfactory deposit of clay was located. In the foreground there are several half-ton box trucks on 2 ft gauge. They appear to be working on overburden as beyond them, at a level some six feet lower than the foreground, the actual clay hole is supplying a single side-tipping V-skip, which is being hauled by winch up an incline to the adjacent brick presses and kilns. In the background, from left, we have large firewood stacks, and behind the trees the first rudimentary houses in Yallourn, the steel framework for the Briquette Factory and at far right some tents in the Southern camp. Photo: SLV H2009-18/271*

Below: Ruston Proctor shovel. *Taken between November 1921 and October 1922, the hired Ruston Proctor steam shovel is loading trucks hauled by hired locomotive V 10. In the background is one of the shafts sunk for coal sampling purposes with a couple of ½-ton box trucks on the surface. To identify the best place to start the open-cut excavation – that with the least overlying ground, hundreds of bores and several shafts were sunk in a grid pattern. It was from one of these shafts that the revelation came – the Yallourn coal contained about 66% moisture as opposed to that from the nearby Great Morwell mine at 48%. This forced a dramatic re-evaluation of the proposed coal-burning methods. Photo: SLV H2009.18/130*



Overburden into embankment. *A South Australian Railways 3ft 6in-gauge V-class 0-4-4T was hired by the SEC from October 1921 until October 1922 to assist speeding up the overburden work. The diminutive locomotive was well-suited for hauling side-tipping dump trucks of the type made by the Western Wheeled Scraper Company, Aurora, Illinois, USA, on the temporary tracks. Our 1922 photo shows the loco backing its trucks along temporary tracks, dumping spoil to form the railway embankment that would be used for the VR lines and sidings between the old Great Morwell mine's branch line, the 'A' power station and Yallourn railway station.* *Photo: SLV H2009.18/188*

Hired locomotive. *The South Australian Railways' V-class No.10 and trucks discharging spoil onto the railway embankment being formed near the power station. The small loco, one of eight of its class and weighing about 15½ tons, was built by Beyer Peacock, Manchester, England, builders number 1598 of 1876. No.10 had a varied life – commencing work in February 1877 when it replaced horses on the recently constructed Kingston (SE) to Narracoorte railway. In 1894 it was rebuilt and from 1902-04 it was hired to the Wallaroo Mining Company. For a year from October 1921 it was hired to the SEC before being sold to the South Australian Harbors Board in 1937 and finally scrapped in 1954. The extra cab-front windows and fill-in pieces are a SA addition – no doubt the original spartan spectacle plate made life a bit too breezy for the crew.*
Photo: SLV H2009-18/523

No.3 Ropeway. *An interesting pair of photographs, showing Yallourn 'A' power station and No.3 Ropeway (from Screen House to Power Station coal bins) under construction. Newly-arrived 20½ in-gauge trucks wait in the foreground and right middle-ground. Most of this ropeway was elevated on steel trestles, to span the future VR sidings, and to enable dumping into the various storage bins next to the power house. The electricity poles are bringing power from the TPP, about a half-mile distant. The No.3 Ropeway went into service in August 1924. This ropeway's skips were of steel construction, bottom opening, and held 6⅔ cubic yards of screened coal. Track was 20 lb/yard and max curve radius was 12 feet. This picture is thought to be from late 1922.* *Photo: SLV H2009-18/621*

No.3 Ropeway. *A lot has happened since the above photo was taken. The ropeway is now operational – two empty and two full trucks are visible on their separate tracks – and 'A' power station is operating. The Telpher transporter has been finished and a large dump of coal can be seen, beyond the ropeway's steel trestles. A rake of VR trucks with raw coal are in the sidings – is it for Melbourne or maybe Great Morwell coal for blending with Yallourn coal? At near right, three men are manhandling an empty ropeway truck onto a short siding. Why? The No.3 Ropeway was 3396 feet in length (one complete return trip) and initially had 14 trucks that could supply 250 tons per hours.* *Photo: SLV H2009-18/618*

Above left and above: No.1 Ropeway and Temporary Loading Station. *This pair of flawless photos were placed to form a panorama in a presentation album: "Yallourn Views". They are looking north-west from the south-west corner of the open cut and must have been taken between August 1924 and April 1925. The No.1 Ropeway (far left), supplied by the Mead-Morrison Manufacturing Co, USA, was initially 2860 feet long, running in a loop from the open cut to the Screen House on a 1 in 13⅓ grade. At commencement in August 1924 it had eight 20½in-gauge gable-bottom, self-discharging bogie trucks with wooden bodies. From August, until January 1925 those ropeway trucks were filled from a temporary loading station (pictured) at the base of the incline. The loading station was fed coal by a conveyor from a crusher and bunker supplied by horse-drawn 3ft 6in-gauge Western dump trucks travelling a continuous loop. Those trucks were filled by one of the Bucyrus steam shovels. In January 1925 two 0-4-2ST steam locomotives, ex Wallaroo & Moonta Mining and Smelting Co (HC 394/1892 and 803/1907), commenced hauling the trucks on the afternoon and night shifts, however horses were still required for the mornings. In April another 0-4-2ST was obtained, also from Moonta (HC 609/1902), completing the withdrawal of horses from the open cut. This carefully posed photo does not have sufficient horses or drivers for the dozen trucks pictured, however neither are there any steam locomotives in view. The sun is high leading one to suggest October or November 1924; maybe a posed photo at the start of lunch break. November 1925 brought yet another change when the Temporary Loading Station was abolished and the ropeway was extended into the open cut, and the steam locos went the way of the horses. The ropeway extension became No.2 Ropeway. Dominating the right background is the original overburden (sometimes called 'The Alps'), the weight of which caused slumping of the north wall of the open cut. In the next few years it would all be moved a half-mile or so, to the north-east using all available steam locomotives and trucks. Photo: SLV H2018.71/7 (panorama in the album), individually H2009.18/612 and H2009.18/962*

Below left: Open Cut. *Early days in the open cut (1926) and everything is running on rails. The rail-mounted 175B Bucyrus steam shovel is filling Western dump trucks with overburden. The rake of nine trucks is hauled by one of the three new 3ft 6in-gauge Hudswell Clarke 0-4-0STs. The overburden is being taken to a rail-mounted conveyor in the right background, which in turn is feeding the rail-mounted boom-stacker, left background. The far end of the boom-stacker ran on a double set of rails placed in an arc. These tracks would be periodically moved along, creating a small 'mountain range'. On the open-cut floor, beside the shovel, on rickety 2ft-gauge track, is a skip with coal for the shovel. In the foreground a small gang seem to be preparing the soggy ground for the imminent arrival of the steam shovel. Photo: SLV H2009-18/872*

Further Reading

- "*Yallourn Was . . .*" Prue McGoldrick (Gippsland Printers, Morwell, 1984)
- *Brown Coal* – H Herman (SECV, 1952)
- *Train Systems – Yallourn and Morwell*; J A Vines (Generation Victoria, Morwell, 1994)
- *Yallourn Power Station – a history; Colin Harvey (SECV, 1994)*
- *Coal Mining Heritage Study in Victoria* – Jack Vines (Heritage Victoria, 2008)
- *SEC Railways, Yallourn*, in *Light Railways* No.82; J L Buckland (LRRSA, Oct 1983)
- TROVE – National Library newspapers

An ex-Hobson's Bay Railway Stephenson 2-4-0WT of the type used on the Pomborneit ballast siding shown at work in the Coode Canal in 1883-1884. The Bulletin, *May 1978, page 94 (credited to H.W.M. Clark collection). Courtesy Australian Railway Historical Society*

Lewis' ballast siding, Pomborneit, Victoria

by Norm Houghton

In the section between Stoneyford and Pomborneit on the Geelong to Warrnambool broad-gauge line in Victoria's south-west, a keen observer can pick out the formation of a long-gone ballast siding on the south side of the line, about 700 metres east of the Pomborneit station site.

This siding was installed in 1890 by Lewis & Roberts, the contracting firm building the Birregurra to Forrest railway, and named as Lewis' Siding. The VR permitted contractor's engines and trains to run over its tracks at the time and make connections to works sidings, so the arrangement was routine. There were no suitable ballast materials anywhere near the Forrest line, and precious little around Colac, so the contractor settled on the volcanic black scoria deposits forming Mount Porndon at Pomborneit. The VR secured an easement for the route on behalf of the contractor. The route ran across two farming properties, and there was an arrangement made with the landholder at the terminus, George Harrison, on extraction rights.

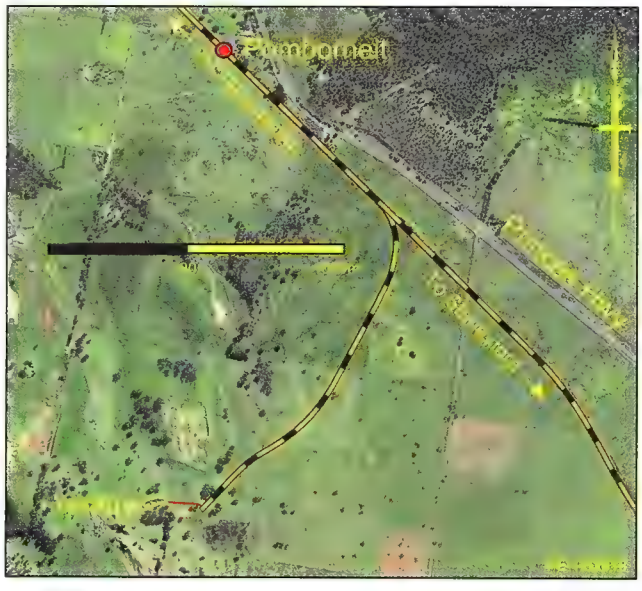
This quarry was nearly 50 kilometres west of the Forrest line work site, some distance, but the contracting company had a stable of two locomotives to do the run back and forth. The locomotives were formerly of the Melbourne & Hobsons Bay Railway Co (and latterly ex VR as the 'N' Class). They were early 1860s Robert Stephenson products of the 2-4-0WT type. The records are unclear as to the provenance of the Lewis & Roberts locomotives and they may not have come direct to them from the VR but through a third party, such as another contractor.

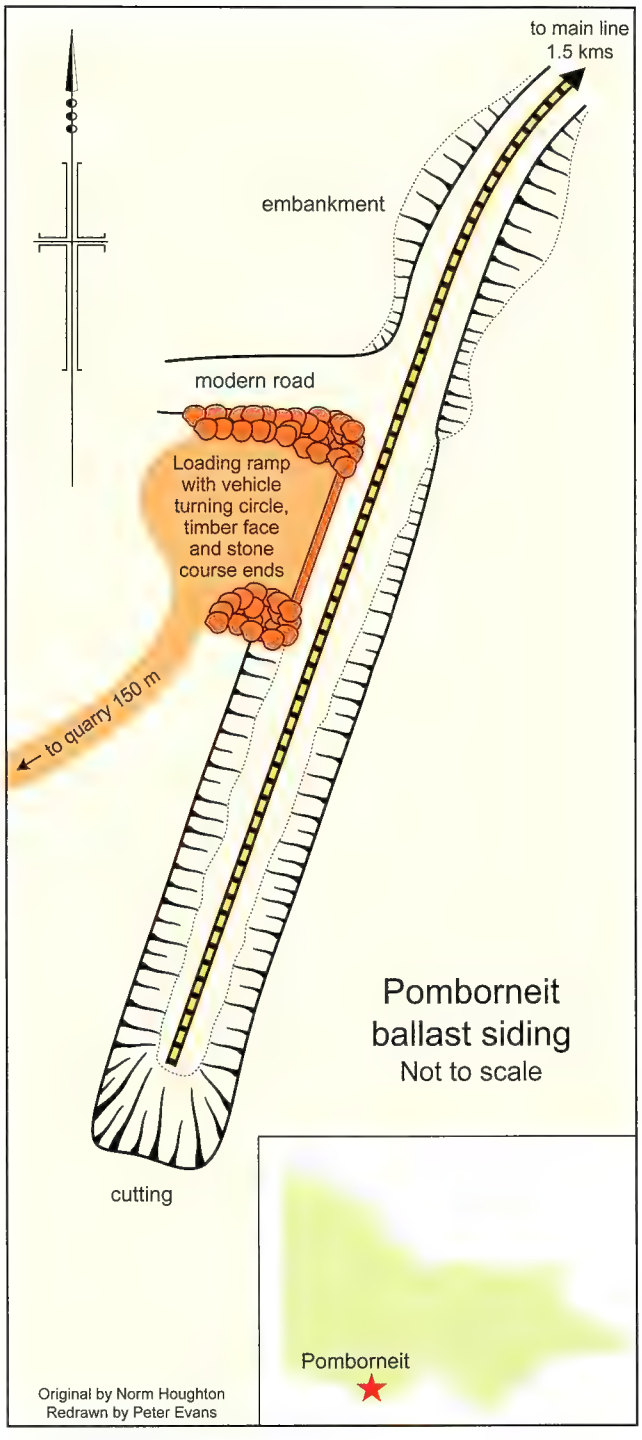
The turn-out for the siding was at local mileage 17 and 40 chains on the Colac to Camperdown railway (or 112.75 miles in the standard measure), which was on the down side of the Stoneyford station and not far short of the Pomborneit station.

Press reports mention that the siding was being constructed in May 1890, and VR records indicate the siding was connected to the main line on 10 June 1890, so the track and loading ramp must have been built in five or so weeks. The contractor had an army of navvies skilled in tracklaying so the job would have been straightforward and fast, particularly as the track was laid straight onto the ground with no earthworks being required until near the terminus, where a small gully was crossed with an embankment

The siding came off the VR tracks with the points facing Pomborneit, these being secured with a hand-locking bar. From the junction the rails curved to the east and south, ran across flat ground for about one kilometre, and then climbed on a slight grade before coming to the side of the Mount where the line terminated in a dead end cutting some 1.5 kilometres from the points.

The loading arrangement for the scoria involved an inset cutting to the mountainside, 80 metres in length, excavated





and blasted from the hard rock overlay. Powered rock drills were used for this work so the navvies would have made short work of the cutting. At the start of the cutting, on the west side, an elevated loading platform and ramp was built, it being 25 metres long, timber faced and backfilled with scoria to form a hard roadway. The scoria mixed with earth and tramped down (by horse hooves and wagon wheels) forms a very hard surface like concrete, this giving the laden wagons an all-weather track to the ramp. The ramp was some height above rail truck level, so there must have been delivery chutes, probably formed in timber, put in place.

The working method at the quarry was to lift off the surface slabs and rocks and dig away the dirt until meeting the scoria bed, two to three metres below. The scoria seams here were, and remain, virtually bottomless, and are easily mined with pick and shovel. The 1890 quarrymen formed a face and then manually barred this to loosen the wall and collapse it to the quarry floor. The scoria was shoveled into horse drawn wagons, carted the short distance to the ramp and tipped into the rail trucks below.

There was no run around loop at the end, so the rake of trucks was pushed along the siding on the inwards leg and taken out trailing the engine. The working method would have involved placing the end of the rake under the ramp and chutes, maybe three trucks, filling them, then pushing back for another three and so on until the buffer stops were reached. The trucks could hold up to 10 cubic metres of stone each, depending on whether they were low or high sided.

It is not known to the writer what the prevailing safe-working protocols were for the junction, but the contractor's train would require authority for the main line between Stoneyford and Pomborneit plus access to the points key. The ballast train entered the main line from the Forrest line work site at Birregurra, so would run through to Pomborneit, pick up a key to the points lock (or take the Porter along to do it), proceed to the ballast siding points, run along the siding and return with the loaded trucks to Pomborneit where the engine ran around and headed back to Birregurra. Tender first running was required one way between Colac and Pomborneit and along the ballast siding as there was no turning facility available. The engine could turn at Colac.

There was a management issue with this siding over the contractor filling scoria orders for the Colac Shire Council and carting the scoria for Council. The VR was not keen on this trade but eventually relented and imposed a freightage charge and gave authority for the contractor to convey Council stone from Pomborneit to Colac and also to Beeac. The contractor had residual running rights to Beeac as the firm had built this line a year earlier.

Ballasting of the Forrest line was completed around March 1891, so the contractor stopped using the ballast siding officially on 18 April 1891. After the Forrest line was opened in June 1891, and the contractor had satisfactorily acquitted the project, the locomotives were stabled at the Murroon station near Forrest. There were no more rail building contracts being offered in the Colony for some time, so the contractor's plant became redundant and was subsequently abandoned. The locomotives remained at Murroon for an unknown period into the 1890s until the VR took them away for storage at Newport workshops. One of them was later employed on the Deans Marsh to Benwerrin coal tramway.

With the contractor out the way, the VR took over Lewis' Siding for the purposes of obtaining ballast for its track work in the district.

Changes were made to the Safe Working on 8 March 1897 when the point-locking bar was changed to an Annett Lock, the key to which was attached to a temporary train staff for the section Stoneyford to Pomborneit. Presumably this temporary staff was specifically for ballast train movements into and out of the siding. The Annett Lock was changed to a Staff Lock on 10 October 1899 as part of a program where the electric staff system was introduced to all stations along the Warrnambool line. The key to the siding points was the electric staff for the section. Given this, it would be unlikely that the engine on the ballast train would shunt the siding and wait at the end for however long it took to load the rake of trucks as this waiting period would deny other trains use of the main line between Stoneyford and Pomborneit. So, probably, the engine placed the empty trucks or retrieved the full ones in a single, quick operation. The empties could have been shunted to the end of the siding, braked, and the locomotive depart, leaving the trucks to be filled in sequence by hand shunting them along the line.

The VR maintained the siding easement rights to 1897 and renewed them for another seven years to 1904 and then another seven, so the facility was used, or available for use, through to 1911. The usual VR records on track connections are silent as to when the siding closed but, if the VR had no running rights there after 1911, then the siding can be regarded as abolished around that year. It is guessed that, by this time, the lighter scoria ballast fell out of fashion when heavier cushioning and stability were preferred for the upgrading of track beds on the Warrnambool line when this was done from 1912 to 1914.

On the Forrest line the scoria ballast was adequate for the day and the nature of this light line, although it was not much good on the many bridges along the route as it dribbled though the bridge decking cracks in summer. The track gangs had to lay feathering strips along the board joins to stop this leakage.

On closure of Lewis' Siding, the rails were lifted by the VR, but the sleepers were left on the ground as they were not worth retrieving, probably being the cheapest and lowest standard required for a temporary line. George Harrison later salvaged them to build fences and a stable.

The writer gained permission from the two owners whose lands carry the siding to walk the route in June 2018. The Harrison family still own and farm the quarry site and are very conscious of its historic significance. The route can be traced all the way. The formation for the first kilometre or so is represented by a very, very low, grass covered mound, sometimes hard to discern. In one section, where the grass is patchy, and some scoria has been used, the imprints of the sleepers can be seen. Within 400 metres of the terminus the formation is very obvious where this section was used as an outlet road for quarry works in the 1960s and given a hard surface.

At the terminus the loading bank and ramp is intact, although all of the facing and supporting woodwork is long gone, and parts of the leading edge have tipped forward. There were stone facing walls on both ends of the ramp, and some of the courses remain in situ, but most of this stone was removed by George Harrison to be used on various jobs around the farm. The cutting has part fallen in but is mostly intact. Visible in some of the rock are the long drill holes inserted at the time to do the blasting to form the cutting.

Sources

Colac Herald 13/8/1889, 27/5/1890, 8/7/1890, 18/7/1890, 28/9/1890, 3/10/1890, 14/10/1890, 30/1/1891, 2/6/1891. VR Correspondence Register 96/12716. A. Jungwirth & K. Lambert, *Weekly Notice Extracts 1894 – 1994*. Information from Les Harrison. Site Inspection.

Scene from the top of the loading ramp. Road in from the quarry on the right. Turning circle and ramp top to the right. The squarish blocks along the left top of the ramp are compacted slabs of scoria forming the surface and edge of the ramp. The blocks have collapsed down the slope. The rail cutting is left below the ramp. *Photo: Norman Houghton*

Above: *View from the end of the line, at the top of the cutting and looking back towards Pomborneit. Road and ramp to the upper left.*
Photo: Norman Houghton

Below: *Vista from the top of the ramp looking along the formation and the only significant earthworks along the line, namely, an embankment over a shallow gully.*
Photo: Norman Houghton

Queensland miscellany

The former convener of the SA Group of the LRRSA, the late Arnold Lockyer, had an extensive collection of photographs and records of light railways across Australia, which has now been digitised and is managed by the National Railway Museum (NRM) in Port Adelaide. Below is a small sample of some of the sugar cane light railways used in Queensland. We gratefully acknowledge the NRM for the images. Any comments or further information from readers are welcome.

1. Hambledon Mill, near Cairns

The Redlynch yard was at the northern end of CSR's Freshwater line, a five mile extension built in 1925 through difficult country to the west of Cairns. It connected Hambledon mill with what had previously been isolated light lines feeding into the QR at Redlynch. A fleet of three Hudswell Clarke tender locomotives were purchased to operate the line and more joined them in subsequent years.

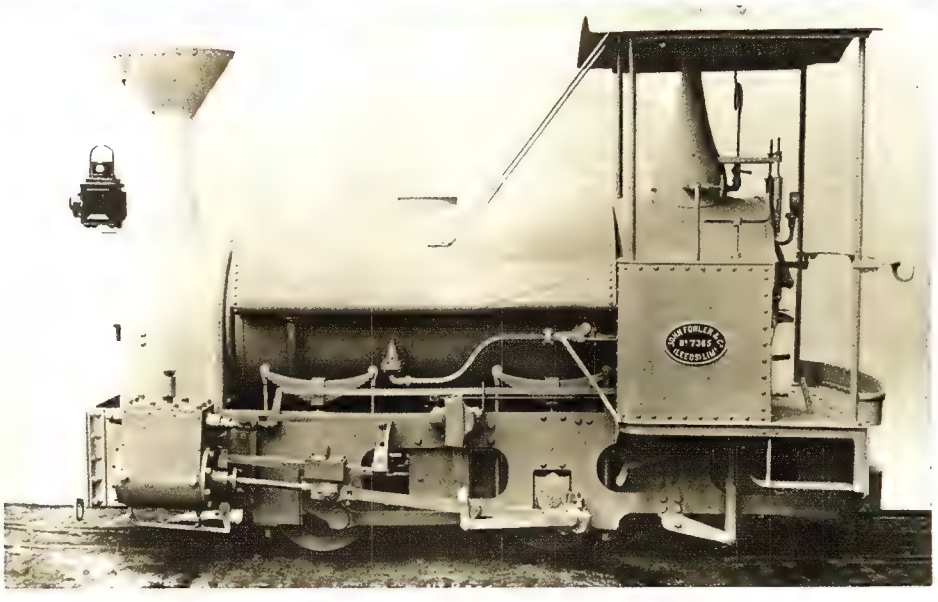
The photos are taken facing north-west, looking towards the low level bridge where the line continued on under the QR Kuranda line before crossing the Barron River. The steam locomotives were unable to pass under this bridge and so cane was gathered up and marshalled at the Redlynch depot yard by small petrol locomotives.

The two photos on this page show Hudswell Clarke number 7 (1653 of 1934). standing at the water tank. Its number appears in the star on its smokebox door. There is plenty of evidence that this is the location where sandboxes were replenished in preparation for the taxing climb up to the Brinsmead Gap. The Fowler internal combustion locomotive is 20827 of 1935, which would have been one of those based at Redlynch.

Photos from the NRM Arnold Lockyer collection – courtesy G Blom, Cairns. Reference numbers 7-1001-034A-030 and 7-1001-034A-031

2. Bingera Mill

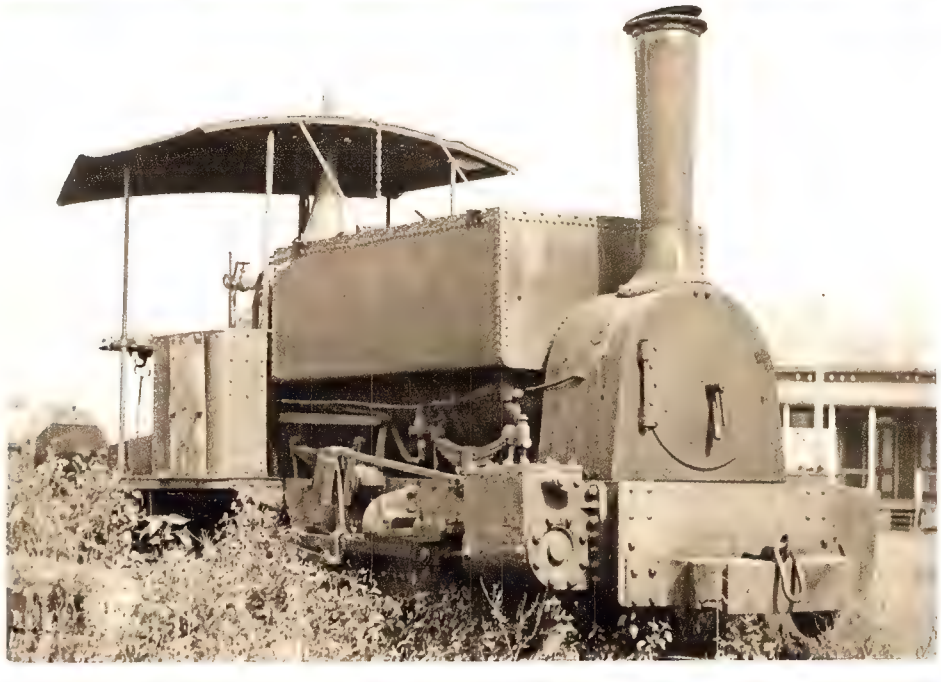
John Fowler locomotive Rose *0-4-0ST B/N 7365 of 1894 shown here out of use at the mill in October 1944. The locomotive was ordered by Frederic Buss for his Invicta Mill on the Kolan River and was ex works in March 1895. It was known as* Rose *but probably never carried that name. It is said that its naming came as a result of friendly rivalry between the Englishman Buss and the Scot Angus Gibson of neighbouring Bingera Mill, whose similar locomotive was known as* Thistle. *Bingera took over the Invicta Mill tramway, initially on lease, in 1918. The replacement saddle tank is perched awkwardly on top of the boiler but otherwise this image makes a nice contrast with the builder's photo of* Rose *(below right). Photo from the NRM Arnold Lockyer collection – courtesy John Buckland (Ref QP 16). Reference number 7-1001-034A-041*



3. Bingera Mill

John Fowler locomotive Thistle *0-4-0ST B/N 7126 of 1894 shown here out of use at the mill in October 1944. Ex works in February 1894, this locomotive was ordered for Bingera Mill. It is difficult to be sure that the saddle tank is a replacement, but the untidy riveting along the top edge suggests so and it is likely that* Thistle *originally had a tank similar to that shown in the builder's photo for* Rose. *It retains the original safety valve arrangement but the cab roof has been considerably extended sideways.*

Photo from the NRM Arnold Lockyer collection – courtesy John Buckland (Ref QP 17). Reference number 7-1001-034A-042



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Special thanks to contributors to the *Sugar Cane Trains/Navvy Pics 2ft* Facebook page.

QUEENSLAND

FAR NORTHERN MILLING PTY LTD, Mossman Mill

(see LR 276 p.27)
610 mm gauge
Repairs to Com-Eng 0-6-0DH *Faughy* (AL4190 of 1965) following the level crossing collision of 16 September were completed by 30 November including hood repairs and repaint to the hood and front end.
Far Northern Milling 11/20

MSF SUGAR LTD, Mulgrave Mill

(see LR 276 p.27)
610 mm gauge
After its return to the Redlynch Depot on 16 September, Clyde 0-6-0DH 13 *Hambledon* (64-316 of 1964) appears to have spent the rest of the crushing based there, being spotted working the area on 8, 10 and 21 November. In an uncommon occurrence, Com-Eng 0-6-0DH 26 *Meringa* (AK3675 of 1964) took a rake of empties to Redlynch on 7 October. Com-Eng 0-6-0DH 9 *Meerawa* (FC3473 of 1964) and EM Baldwin 0-6-0DH 11 *Maitland* (4413.2 8.72 of 1972) have also been known to do runs to the Redlynch Depot. Only locos having brake wagons equipped with skid brakes are permitted to work fulls back to the mill from Redlynch.
Derelict Clyde 0-6-0DH 14 (56-86 of 1956) was seen being moved around near the loco shed by Com-Eng 0-6-0DM 5 (A1005 of 1955) on 9 November. Clyde 0-6-0DH 25 *Cucania* (63-289 of 1963) which has been in the loco shed since at least 28 August was seen outside on 28 November, up on shop bogies with wheelsets removed. The front headstock had been painted with gray primer. The duplication of the Bruce Highway between Edmonton and Gordonvale will cause rerouting of the Wrights Creek line including the Wrights Creek bridge during the 2021 slack season. The last rake of bins was hauled out by Com-Eng 0-6-0DH 26 *Meringa* on 22 November. In associated works, the line along a road reserve off the end of Littles Road will be realigned to accommodate the new Pine Creek Yarrabah Road.
John Browning 8/20; Gregorio Bortolussi 11/20; Anthony McIlwain 11/20; Joseph Dietz 10/20, 11/20; Doug Witteveen 11/20; Department of Transport and Main Roads 11/20; Chris Stephens 12/20; Stephen Metcalf 12/20

MSF SUGAR LTD, South Johnstone Mill

(see LR 276 p.27)
610 mm gauge
Two women received minor injuries after their car collided with a cane train at the intersection of the Bruce Highway and Hodgson Road at Goondi bend on the evening of 10 October. The level crossing was equipped with flashing lights with the driver allegedly telling police she did not know what they meant. By 10 November, Com-Eng 0-6-0DM 28 (AA1544 of 1960) had been moved to the loco storage shed precinct from the navvy area where it has been stored for many years. By 29 November, the final drive, rods and cranks had been removed and it was in same state on 5 December. The corrosion on the cab and body work of this loco is horrendous. Late in November, Clyde 0-6-0DH 12 (55-60 of 1955) was seen working the Little Tableland area south of the mill.
Cairns Post 11/10/2020; Robert Nadin 11/20; Gegorio Bortolussi 11/20; Luke Horniblow 12/20; Chris Stephens 11/20

Mulgrave Mill's Clyde 0-6-0DH 13 Hambledon *(64-316 of 1964) passes under the Queensland Railways bridge at Redlynch on 21 November.*
Photo: Gregorio Bortolussi

Above: *Mulgrave Mill's Com-Eng 0-6-0DH 26* Meringa *(AK3675 of 1964) has just been overtaken at Wrights Creek by the Tilt Train on the adjacent Queensland Railways line on 22 November. Photo: Gregorio Bortolussi*
Below: *Mulgrave Mill's Clyde 0-6-0DH 13* Hambledon *(64-316 of 1964) on the Barron River bridge at Kamerunga 10 November. Photo: Anthony McIlwain*

TULLY SUGAR LTD
(see LR 276 p.28)
610 mm gauge
Com-Eng 0-6-0DH multi-unit locos 10 (AD1341 of 1960) and 14 (AK2663 of 1963) had been fitted with Willison couplers by 8 November.
Luke Horniblow 11/20

WILMAR SUGAR (HERBERT) PTY LTD, Herbert River Mills
(see LR 276 p.29)
610 mm gauge
A car collided with EM Baldwin B-B DH 20 (7070.4 4.77 of 1977) at a level crossing on the Hawkins Creek line on 21 October. The loco was pushed off the line by the force of the collision with the car being a write off and the driver sustaining minor injuries. During the evening of 24 October, a car with an intoxicated driver collided with the rear portion of the Victoria Mill sugar train hauled by EM Baldwin B-B DH *Rynne* (5423.1 9.74 of 1974 rebuilt N+P 2009) at a level crossing in Halifax. Macknade Mill's EM Baldwin B-B DH *Selkirk* (6750.1 8.76 of 1976) and Clyde 6 wheeled brake wagon 7 (CQ3477-3 of 1976) were swapped for Victoria Mill's Clyde 0-6-0DH *Ingham* (64-382 of 1964) at some time between 10 and 12 October then both locos were swapped back between 17 and 19 November.
Editor 10/20, 11/20; *Townsville Bulletin* 21/10/2020, 25/10/2020

Clyde 0-6-0DH 13 Hambledon *(64-316 of 1964) heading for Mulgrave Mill's Redlynch Depot with cane from the Freshwater area on 8 November. Photo: Anthony McIlwain*

WILMAR SUGAR (INVICTA) PTY LTD, Invicta Mill, Giru
(see LR 276 p.29)
610 mm gauge
Com-Eng 0-6-0DH *Barratta* (AH4098 of 1965) was seen in use at Kalamia Mill during the latter half of October. Around 1 November, Invicta took delivery of eight new 6 tonne bins from Kalamia Mill.
Luke Horniblow 10/20; Mayson Bengoa 10/20, 11/20

WILMAR SUGAR PTY LTD, Pioneer Mill, Brandon
(see LR 276 p.29)
1067 mm gauge
In a rarity for the industry, Clyde 0-6-0DH locos *Maidavale* (62-266 of 1962) and *Colevale* (65-438 of 1965) are still running Detroit Diesel 6-71 motors.
John Taylor 12/20

South Johnstone Mill's EM Baldwin B-B DH 24 (5477.1 8.74 of 1974) passes under the Queensland Railways bridge at Daradgee on 3 December. Photo: Gregorio Bortolussi

Above: *Demonstrating two types of multi-uniting at Tully Mill on 8 November are elephant style Com-Eng 0-6-0DH locos 10 (AD1341 of 1960) and 14 (AK2663 of 1963) along with back to back Com-Eng 0-6-0DH locos 16 (AH4484 of 1964) and 11 (AD1347 of 1960). Photo: Luke Horniblow*

Below: *Invicta Mill's Com-Eng 0-6-0DH* Barratta *(AH4098 of 1965) at Rita Island Junction while on loan to Kalamia Mill on 18 October. Photo: Luke Horniblow*

WILMAR SUGAR (KALAMIA) PTY LTD, Kalamia Mill
(see LR 276 p.30)
610 mm gauge
Invicta Mill's Com-Eng 0-6-0DH *Barratta* (AH4098 of 1965) was seen in service here on 18, 24 and 26 October. Around 1 November, EM Baldwin B-B DH *Burdekin* (10215.1 7.82 of 1982) was seen hauling eight new 6 tonne bins away from the mill, these bins being destined for Invicta Mill.
Luke Horniblow 10/20; Mayson Bengoa 10/20, 11/20

WILMAR SUGAR PTY LTD, Inkerman Mill, Home Hill
(see LR 276 p.30)
610 mm gauge
Early in November, cane from here was being transferred to Invicta Mill using haulout trucks to get bins across the Burdekin River. Com-Eng 0-6-0DH *Keebah* (C2231 of 1958) was seen pushing fulls up onto trucks at a siding dump point.
Luke Horniblow 11/20

WILMAR SUGAR (PROSERPINE) PTY LTD, Proserpine Mill
(see LR 276 p.30)
610 mm gauge
The Tamper VT-JWL tamping machine (553 of 1975) has been donated to the Wiscasset, Waterville and Farmington Railway Museum, Maine, USA and was on its way by 13 November. It will be named *Wilmar* in honour of the donating company.
Wiscasset, Waterville and Farmington Railway 11/20

MACKAY SUGAR LTD, Mackay mills
(see LR 276 p.31)
610 mm gauge
A section of the ex QR line to Marian next to the Peak Downs Highway was being lifted early in December with the rails to be used somewhere on the firm's rail system.
Mike Manning 12/20; Shane Ekerbicer 12/20

WILMAR SUGAR (PLANE CREEK) PTY LTD, Plane Creek Mill, Sarina
(see LR 276 p.31)
610 mm gauge
Seen at Shannons Flat in the latter part of October were the frame of Com-Eng 0-6-0DH 3 (FA1036 of 1959), the two ex Victoria Mill ballast hoppers and plough built on the frame of Motor Rail Simplex 10381 of 1953, Tamper tamping machine (559 of 1975), Tamper ballast regulator (557 of 1977) and Tamper TSR-RS sleeper renewer (581 of 1987). At the mill on 25 October were the Plasser KMX-08 tamping machine (415 of 1995), Plasser TC50 line car (built in 1982) and the eight Herbert 8 tonne bins.
Carl Millington 10/20

BUNDABERG SUGAR LTD, Bingera Mill
(see LR 276 p.31)
610 mm gauge
Owing to a lack of sufficient cane, this mill permanently closed at the end of the 2020 crushing season. A mere 450,000 tonnes was crushed this year and the company's Millaquin Mill will crush this cane in the future. It will be rail hauled but it is not known yet how the bins will cross the Burnett River in the short term. There is a proposal by Bundaberg Sugar to build a retractable bridge in the future. Between them, the two mills this year crushed just over 1 million tonnes of cane compared to 1.8 million tonnes in 2016. EM Baldwin 0-6-0DH *Manoo* (3875.1 7.71 of 1971) was seen in use on 2 and 6 October. Com-Eng 0-6-0DH *Sharon* (A1935 of 1959) was towed by EM Baldwin B-B DH *Moorland* (5565.1 10.74 of 1974) from the Fairymead loco shed back to the mill in mid October. It had been in the shed at Fairymead since the 2013 flood. EM Baldwin B-B DH *Fairydale* (10048.1 6.82 of 1982) had been returned to Millaquin Mill by 13 October.
ABC Rural 23/10/2020; Bundaberg Now 25/10/2020; Brian Bouchardt 10/20; Matthew Andrews 10/20; Carl Millington 10/20; Mitch Zunker 10/20

BUNDABERG SUGAR LTD, Millaquin Mill
(see LR 276 p.31)
610 mm gauge
EM Baldwin B-B DH *Fairydale* (10048.1 6.82 of 1982) was back here by 13 October after being on loan to Bingera Mill.
Carl Millington 10/20

ISIS CENTRAL SUGAR MILL CO LTD
(see LR 276 p.32)
610 mm gauge
By 16 October, track laying on the new line to Duingal had reached to just short of McLennon Drive, Duingal. Ballasting had been done from Marule Road first crossing to Marule Road second crossing where the level crossing is still to be constructed. On 30 November, Walkers B-B DH 2 (598 of 1968 rebuilt Walkers 1994) was working the poison spraying train on Mamminos

Marian Mill's Eimco B-B DH Farleigh *(L254 of 1990) crosses the Pioneer River at Mirani on 4 December.* *Photo: James Chuang*

Plane Creek Mill's Walkers B-B DH Victoria *(599 of 1968 rebuilt Tulk Goninan 1994) on a rake of empties and propelling its Chinese built bogie brake wagon 5 (built in 2015) at Koumala on 1 November.* *Photo: Gregorio Bortolussi*

line at Horton. From next year, cane from the closed Maryborough Mill will be crushed at Isis Mill. Initially, it will be road hauled to a transloader on the southern side of Childers. A section of the Doolbi line between Browns Road and Rankin Road, including the Diamond siding, was being removed by 5 December to make way for the construction of this transloader. In the longer term, it is proposed to expand the rail network towards Maryborough.
North Queensland Register 30/10/2020; Carl Millington 10/20; Brian Bouchardt 11/20, 12/20

MSF SUGAR LTD, Maryborough Mill
(see LR 276 p.32)
1067 mm gauge
This mill, which once had an internal rail system, permanently closed at the end of the 2020 crushing season. From next year, the cane still being grown in the area will be transported to Isis Mill near Childers. Initially, cane will be road hauled to a transloader on the Isis Mill rail network.
North Queensland Register 30/10/2020; MSF Sugar 11/20; Brian Bouchardt 12/20

DALBY MACHINERY CENTRE, Dalby
1435 mm gauge
Clyde Bo-Bo DE TL153 (57-143 of 1957) was seen on display here on 4 October. Built for the Kowloon-Canton Railway, Hong Kong, it was ex CFCLA and still carrying their colours.
Gregorio Bortolussi 10/20

GLENCORE plc, MOUNT ISA MINES LTD, Mount Isa
(see LR 249 p.25)
1067 mm gauge
Former loco Com-Eng 0-6-0DH 5802 (JA4282 of 1964) used at the Mica Creek power station, was transferred from the Zig Zag Railway, NSW into the custody of the Queensland Pioneer Steam Railway in mid November.
Queensland Pioneer Steam Railway 11/20

RIO TINTO ALCAN, Weipa
(see LR 271 p.31)
1435 mm gauge
Former loco Clyde Co-Co DE R1001 (71-752 of 1972), now Southern Shorthaul Railroad's L277 *Phoenix*, was seen at Bullock Island, Newcastle on 25 November.
Bradly Coulter 11/20

NEW SOUTH WALES

BLUESCOPE STEEL LTD, Port Kembla Steelworks
(see LR 276 p.32)
1435 mm gauge
Clyde Bo-Bo DE T379 (64-334 of 1964) was scrapped at some time between January and October 2020.
Brad Peadon 10/12

GRAINCORP LTD, Carrington Bulk Grain Terminal
(see LR 267 p.27)
1435 mm gauge
The two Vollert 4wDHS locos known as *Blue* and *Red* (both 80/009 of 1980) were seen here on 15 November during the unloading of a Pacific National grain train.
Bradley Coulter 11/20

OVERSEAS

FIJI SUGAR CORPORATION
(see LR 275 p.25)
610 mm gauge
Ex Lautoka Mill Fowler 0-6-0TT 7 (10656 of 1906) which has been on display at the Fiji Gateway Hotel, Nadi Airport for many years had been repainted in a red and white livery by May 2019. There have been no updates from the government regarding upgrades to the FSC rail system since the visit of Indian railway experts in 2018.
Bon Accord 5/19; *The Fiji Times* 26/11/2020

LRRSA Facebook Group
Have you joined the LRRSA Facebook page, titled *Light Railways of Australia*, yet?
Lots of online discussions and photos of light railway interest

Field Reports

Please send any contributions, large or small, to fieldreports@lrrsa.org.au or to P.O. Box 21, Surrey Hills, Vic 3127.

Ingram's skyline and tramway, Growlers Creek, Western Tyers, Victoria
Gauge 914 mm

Skylines were introduced into Australia from North America, and were a method where logs could be transported over extremely rough country using an aerial tramway. Due to the size of the logs to be handled, the skyline had to be very strongly built and, where the cable had to be transported through rough and broken country before being erected, represented quite an engineering achievement. Few were erected in Australia, and those in Victoria were largely limited to the Warburton and Erica districts. Ingram's skyline at Western Tyers is the only lengthy skyline known to have significant remains in Victoria, and very possibly in mainland Australia.

Chris Ingram came to Australia from New Zealand (where he had managed the Piha Sawmill) and became manager of the Victorian Hardwood Milling & Seasoning Company Pty Ltd in 1915. This firm operated a large sawmilling and seasoning plant at Powelltown on the little Yarra River. Chris Ingram had several sons who entered the sawmilling industry and become important sawmillers and forest managers in their own right.[1]

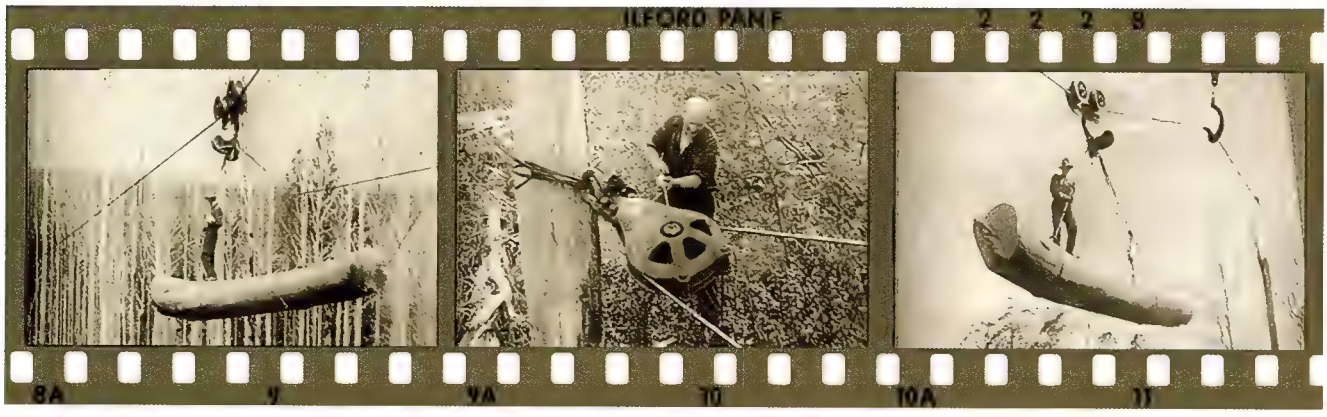
In 1925, Chris Ingram left Powelltown and purchased Collins' mill on the Middle Tyers River. A log tramway incorporating a long incline was installed on Buckles Spur on the slopes of Mount Erica, but the tramway and most of the timber were destroyed in the 1926 bushfires. A new mill was installed but the delay in completing the Forests Commission's Erica steel tramway cost Ingram dearly and, in 1938, the mill was transferred to his sons Neil and Ron who formed Ingram Brothers Sawmillers Pty Ltd. The mill was destroyed shortly afterwards in the 1939 bushfires.[2]

Hec Ingram's Day's rail tractor at the lower end of the skyline. It has just arrived with a pair of empty bogies and will return with the large log on the left, which has completed its journey over the skyline and will be hauled along the contouring tramway to the head of the incline leading down to the mill. Courtesy Hec Ingram via Ross Sinclair.

After the fire, a new mill under the ownership of Alfred Kirton was installed and operated by another of Chris Ingram's sons, Hector Ingram. The mill, on the Western Tyers River, was powered by a Pelton wheel (formerly used in a power station at Noojee), and obtained its logs from Ingram Brother's old area on Buckles Spur. When this area was cut out in 1943, a new incline was installed to reach a suitable point to extend a grade tramway (worked by a Fordson-powered 'Day's rail tractor) into the headwaters of Growlers Creek. At the end of this tramway a skyline was installed. Hec Ingram played a large part in its installation as he was a noted 'high-climber'. In 1946, ownership of the mill passed to CH Tutton and, in 1950, Tutton shifted the mill plant to Heyfield. Hec Ingram installed another mill on the same site on the Western Tyers and continued to work the area until 1954, when he moved the mill to the Mitta Mitta region.[3]

Site description

Ingram's 'North Bend' type skyline is situated on a tributary of Growlers Creek. Apart from the remains of the skyline and a few bulldozer tracks, the surrounding bush typifies the low environmental damage caused by skyline transport. The site is linear in nature and includes the log skyline and the tramway route to which the logs were delivered. The two foci of the site are the head of the skyline (AMG66 04 38310 58 04720) and the lower end of the skyline (AMG66 04 38500 58 04300). The site is located in State Forest, and was first visited by the writer in 1993. On 5 May 2000, I returned in the company of Hec Ingram and Ross Sinclair to revisit the lower end of the skyline and to



These still images were captured on film in the 1937 production Timber, produced by Herschell Motion Picture Laboratories and sponsored by the Shell Oil Company. They show one of Ezard's skylines on the Thomson Valley Tramway to the north of Ingram's skyline, which would have been similar in operation. The man riding the log may be one of Ezard's Canadian crew, Harry Nolan, who was known for such daring exploits.

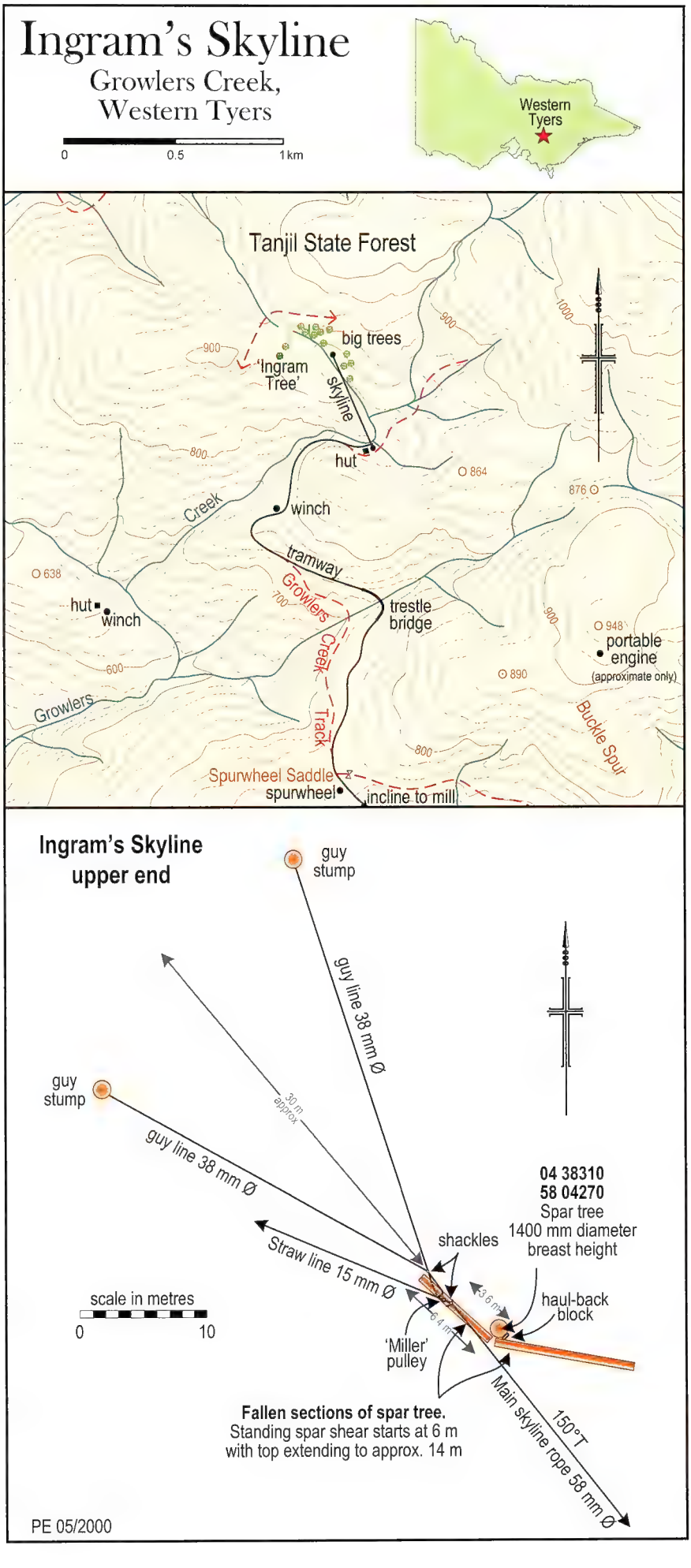
survey the upper end (to which road access had recently been constructed). At that time, remains of almost every facet of the operation of the skyline remained on site.

The head of the skyline is situated on a small knoll on the east side of a tributary of Growlers Creek. The spar tree supporting the upper end of the skyline has broken off about 14 m above the ground, but retains the bull-wheel for the carriage haul-back rope at a point 6 m above the ground. The main skyline rope complete with eye-splice and a large shackle were still wrapped around the fallen spar tree. Associated with this is a light 'straw' line and a small pulley with a guard plate that may have supported a bosun's chair to service the skyline. From the spar tree, two wire ropes lead back to stumps used as anchor points. A narrow bulldozer track with a deep snig furrow leads up to the spar tree and demonstrates how the logs were brought to the skyline.

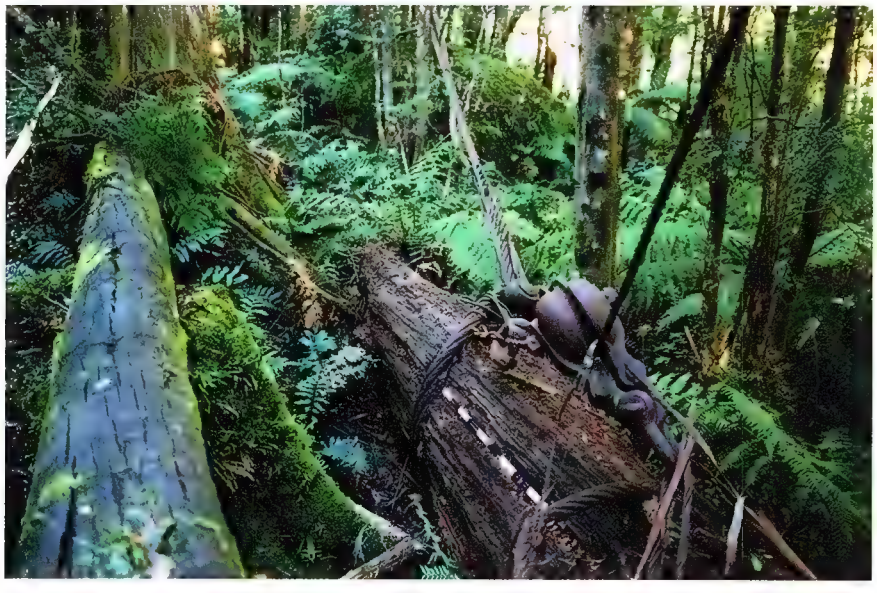
The main skyline rope stretches south-east into the bush. The cable is approximately 58 mm in diameter and is laid in right hand 'Lang's' lay. Wire ropes constructed in Lang's lay have a much greater wearing surface than ordinary lay ropes and also wear more evenly as the rope tends to rotate in use. Lang's lay ropes are also slightly more flexible than ordinary lay ropes of the same dimensions, and are particularly suitable for winding, haulage, elevators and aerial ropeways.[4] Hec Ingram purchased second-hand wire ropes for his skylines from the State Electricity Commission at £1 per ton.[5] An exposed end of the rope was not available to determine any other details of the type of construction.

Surrounding the head of the skyline is a stand of old-growth mountain ash that escaped the 1939 bushfires. These trees were deliberately left by Hec Ingram as a memorial to his brothers. There are at least sixteen trees in the stand, the largest of which ('The Ingram Tree') is 11.2m girth at breast height. Hec asked the local forester if he could retain these magnificent tress, but was told that he must cut them down. He disobeyed this instruction with the result that a small stand of remnant forest, largely undisturbed, surrounds the head of the skyline. These trees are important not only for what they represent ecologically, but as a statement of the ambivalence of a sawmiller towards the forest from which he obtained his living. On one hand, it was a resource to be utilised, on the other, something to be admired and respected. This stand of trees adds a further element to the cultural significance of the skyline site.

Remains of almost every facet of operation of the lower end of the skyline also extant. The three-sheave block used to tension the skyline is still attached to the end of the main cable by a long splice in the heavy main rope. Part of the cable used to perform the tensioning process lies nearby. The carriage that ran on the skyline (and carried both the fall block for lifting the logs and the haulback rope for returning the carriage to the top of the skyline) lies beside the main cable. The end of the skyline is close to the terminus of the tramway so that the logs could be loaded onto the tramway trucks using



Haul-back block still attached to the standing section of spar tree at the upper end of the skyline in May 2000. Photo: Peter Evans



Skyline rigging still attached to a fallen section of spar tree, showing the straw line and a guy line leading away through the bush to one of the guy trees for the main spar. The second guy line exits left from beneath the fallen spar and is mostly obscured by forest debris. Photo: Peter Evans

One of the guy trees for the main spar with guy rope still attached. Photo: Peter Evans

a 'McLean' style boom loader. Grooves cut into stumps nearby and pointing about 60 degrees above the horizontal indicate where ropes were rigged to stay the spar tree for the main rope and the boom loader.

A hut was still standing at the terminus of the tramway, while another lay collapsed nearby, victim of wattles which have blown over on top of it. The standing hut is typical of the timber-planked, gable-roofed huts common throughout the sawmilling industry in Victoria and used to accommodate one or two men. At the time of survey it was in fairly good condition.

Evidence of the motive power on the grade tramway below the end of the skyline was present in the form of a set of flangeless centre drive wheels for a 'Day's' rail tractor. Also at this point was a brake lever off one of the log trucks. Most of the grade tramway has been converted to Growlers Creek Track, which has itself now been abandoned and has become largely overgrown. Several sleepers complete with dogspikes beside the formation and the gentle grade and sinuous curves of the track betray its former use. About 600 metres south east of the foot of the skyline a profusion of wire ropes and trees wired for bullwheels indicate the presence of a winch site alongside the tramway formation.

The double-drum second-motion winch (AMG66 04 38126 58 04026) was built by the Steel Company of Australia at Brunswick, Victoria. It was originally owned by Christensen & Saxton and later sold to Hec Ingram and modified. The winch had an integral twin-cylinder steam engine with slide valves and cast-iron trunk guides mounted on an RSJ frame. The winch is substantially intact apart from the engine units and is still mounted on its original bedlogs.

Shortly after passing through a cutting on the point of a spur, the road leaves the tramway formation, which continues on into the bush. The tramway has had a bulldozer along it after it was taken out of use, but this does not seen to have damaged the formation to any great degree. Several lengths of steel rail were noted alongside the formation. The most important feature on this line is a large five-span trestle bridge complete with steel rails. (North-western abutment AMG66 04 38532 58 03665). The bridge is built on a curve. Few bridges of this type survive as intact today and, along with the bridge over North Cascade Creek on the other side of Mount Baw Baw, this is the best surviving original example in Victoria at the time of survey.

The tramway formation continues a short distance as the Growlers Creek track before arriving at Spurwheel Saddle, where a large cast-iron gear remains as evidence of the winch and lowering gear at the head of the incline leading down to the sawmill on the Western Tyers River.

This skyline is the only known example with surviving remains in Victoria, and possibly in mainland Australia. The remains demonstrate almost all facets of its operation, and it is put into context by the building and tramway remains

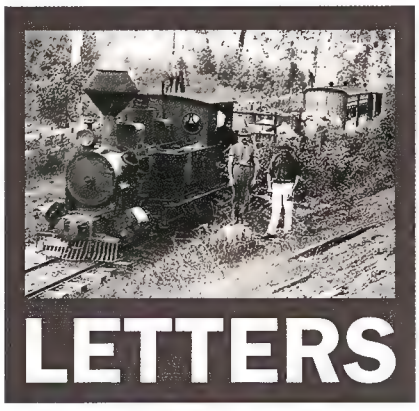
associated with it. It was built and operated by a member of one of Victoria's more important sawmilling families, and is associated with the post 1939 salvage era. Several types of logging and transportation methods are demonstrated. This unique site has been recommended for addition to the Register of the National Estate.
Peter Evans 05/2020

References

1. Stamford et al (1984). *Powelltown*. Light Railway Research Society of Australia, Surrey Hills passim; and personal communication Hec Ingram 4 June 1993.
2. McCarthy, M. (1983). *Trestle Bridges and Tramways: the timber history of the Erica district 1910-1950*. Light Railway Research Society of Australia, Surrey Hills. pages 7-8.
3. McCarthy, M. (1983) *ibid*, pages 14-15. See also PROV, VPRS 11563/P0, unit 257, item 46/1739.
4. John A. Roebling's 1931 and Haggie Sons & Love's post-1936 wire rope catalogues, author's collection.

5.

Above: *Hec Ingram with the three-sheave block he rigged to tension the main rope at the lower end of the skyline. Handling heavy items like these at height was extremely difficult.*
Top right: *Section of the 58 mm diameter main skyline rope at the southern end of the skyline.*
Above right: *Hec Ingram framed in the window of the hut still standing at the foot of the skyline in May 2000.*
Right: *Steel Company of Australia winch drums and RSJ frame beside the Growlers Creek Track.*
All photos: Peter Evans



Yallourn Part 2 – (LR 275)

As always, the magazine is a pleasure to take a moment and enjoy its contents. The article on Yallourn, the early years part 2 has special interest to me as I have first hand knowledge of the mining operations gained whilst as employee of the State Electricity Commission of Victoria at its Yallourn and Morwell operations from 1953 to 1968. In particular:

- I used to visit this mine site regularly to distribute employees pay envelopes to wages personnel working at the mine site. The SEC paid wages in cash and the site foremen identified personnel to facilitate payment. I have travelled with Mayne Nicolas Security and was driven in a very smart Dodge sedan for insurance purposes. We carried a loaded pistol having had training on their use and what to do if problems arose whilst out on public roads.
- The comments on lighting at the mine site can possibly be explained by comments on life at Morwell where reference is made to street lights (using petrol) and then hoisting the lamp to its resting height. This is typical of pressure lamps used in country areas where electricity/gas services were not readily available. My father used to operate similar lighting when we lived near Erica up until 1950. The fuel he used was possibly kerosene or Shellite as petrol was rationed during and after the Second World War. Pressure lamps by "Tilley" and other brands were popular and with careful use, were safe to operate.
- As to the narrative by Phil Rickard, I am reluctant to criticize the detail as he does not disclose the material or other records that he accessed to develop the article.
- His fleeting reference to briquetting of coal is an example of the material that he had access to. The fact that briquette operations were successful using techniques used by the SEC at Yallourn, in my opinion does not recognise the achievements of our pioneers in very difficult conditions without the benefit of modern technology. Incidentally, I understand that some 3100 tonnes (imperial) were produced. Brown coal production from the Yallourn North mine up to 1950 is on record at 3.8 million tons which given the methods used to win the coal, is a very creditable effort. I understand that the Yallourn North mine operations were finally closed in 1961.
- I am aware that the Maryvale Paper Mill preferred the Yallourn North coal due to its lower moisture content and other characteristics to that of the Yallourn coal. The official SEC data states that Yallourn North coal had a moisture content of 54% compared to 63 to 65% for Yallourn coal.
- As to future articles, I suggest the author try and access the following publications issued by the SEC:
  - Book titled *Brown Coal* by H Herman published in 1952. The book is very comprehensive (612 pages) and includes many historical photos of the early years at Yallourn, Yallourn North and later the Morwell open cut operations.
  - Book titled *Big in Power* by Cecil Edwards and published in 1969. At 303 pages it is also a very comprehensive history of the SEC's power generation operations based in the Latrobe Valley and other locations around Victoria. The book is also well illustrated with many historical photos of what our pioneers achieved.
  - Soft cover publicity booklet titled *Electricity for Victoria* and published in August 1927. It contains 92 pages and provides plenty of detail of the Yallourn brown coal, briquetting and power generation operations in their early years.
  - Small soft cover publication titled *Yallourn* dated 1932 and consisting of 25 pages. This booklet includes details of the town of Yallourn and its housing amenities.
  - Small soft covered publication titled *Yallourn* dated 1938 and issued by the SEC. It includes a good fold out panorama of the open cut, and coal winning operations around 1937/38. The detail in this publication complements previous publications and as such helps to understand the development and progress achieved after the SEC was established in 1921.
  - Finally, the SEC published its own newspaper titled *SEC News*. I have a few pages of the 21 July 1966 edition which covers dredges through the ages and is a good reference for future articles.

I personally have copies of the above documents and I suggest that they are available at the State Library in Victoria. I do not know what happened to the SEC Library material after it was sold to private enterprise, but maybe it still exists somewhere. The SEC was very good in recording and retaining its history.

I trust that the above comments assist Phil Rickard to develop future instalments on the Yallourn and Morwell operations. The engineering achievements are well worth recognition, especially as the benefits are still considerable today, albeit in private ownership and management.

Vic Tucker
Parmelia, Western Australia

Yallourn Part 2 – (LR 275)

Further to my previous letter, I have found the attached photo (below) in my collection. I have had the original enlarged to better show the detail of part of the mine site in proximity to where we used to

distribute the pay envelopes to employees at the site.

Whilst the print is showing its age (it was taken in the late 1950s) as the colour is on the dark side, it does show the loading operation activities and the connection to the VR rail line. The day was obviously an overcast one typical of Gippsland and as we used to visit the site around 10.00 am, the works area was often prone to low cloud and rain.

I have been through my collection of plates and coloured slides and this is a the last of the Yallourn North mine site. However, I have others of the Yallourn Power Station, the open cut and coal mining machinery should you be interested.

Vic Tucker
Parmelia, Western Australia

Looking Back – LR264.

Regarding the lower photo on page 23, depicting the Mossman station yard of the Douglas Shire Tramway. The chance finding of an identical copy of the photo, but in the National Museum of Australia's collection enables us to give more precise details of the date and the event depicted. The NMA's copy (image 1986.0117.4625), is enscribed: "Arrival of the Governor, Mossman, Q. 16.6.1910". Additionally, the governor has an arrow indicating his personage.

Examination of the Queensland newspapers located a snippet in the *Bundaberg Mail and Burnett Advertiser* of 24 June 1910, p2, that refers to the governor, Sir William MacGregor, visiting Mossman whilst on his way back south following a visit to Cooktown to open the local show.

Phil Rickard
Ringwood, Vic.

Davenport locomotives in NSW

Readers of *Light Railways* may be interested to know that Roundhouse Engineering, a firm specialising in live steam garden railway locomotives based in Doncaster, UK, is producing a Davenport locomotive as its new locomotive for 2020. I am led to believe that many of the principal dimensions for the model have been taken from Kiama, Davenport builders No. 1596, based at the ILRMS at Albion Park.

I was lucky enough to receive one of the first batch of production models late last month and have been making a study of Davenports in NSW in order to give my model an identity. Readers and fans of the Davenport may be interested to learn that, as a result of my research, I have found that the identity of the original Davenport employed at the State Quarries, Pike's Hill, Kiama was not – as is usually presumed – builders No. 1517 of 1914, but actually 1513 of 1914. As I am sure most readers are aware, this loco was amalgamated with 1596 to produce one working unit around 1938, meaning the current Kiama is actually an amalgam of 1513 and 1596.

In this regard I am indebted to a fellow garden railway modeler, David Fletcher who supplied me with a copy of the Davenport builders' list beginning with builders No 1456 and finishing with 1675. This list neatly encompasses all four Davenports known to have been imported into NSW between 1914 and 1917; namely, the three 2 ft gauge machines used by the NSW Public Works Department (the machine whose identity is the subject of this letter, PWD 23, together with the two Cordeaux Dam locos, 1595 and 1596, PWD 64 & PWD 65) and the 3 ft gauge locomotive used by the Australia Gas Light Company at the Mortlake Gas Works, 1618.

Attached (below) is an extract of the builder's list for reference. It will be seen that 1517 was a standard gauge machine, used – as most Davenports were – solely within the United States. Within the spread of machines covered by the list extract, 1513, 1595, 1596 and 1618 stand out as the only machines sent to Australia, all imported by Frank R Perrot as agent, leaving very little to confusion as to correct identity.

I can also heartily recommend the model Davenport, which captures the character of its larger sister very well.

Dr Gregory Oehm
Moss Vale, NSW

Looking back and Rails to Woomera (LR276)

I am glad to see the use you have begun to make of the Arnold Lockyer light rail photos. Thank you for acknowledging him and the NRM in the credits.

However, the mention of Ref F432/20 for the bottom one on page 37 is a reference to Arnold's negative of the photo, not to the scan of the print in his album. The scan is what was used for the illustration, not the negative. In the NRM indexing scheme for prints in his albums, the correct identifier for the scan is 7-1001-038-065.

The 7 identifies the Arnold Lockyer collection, 1001 the set of albums, the next part is his album number, and the last is the sequence number within the album. These numbers give a unique identifier to each print, based on the position of each print in the albums, and the following is a list of them for the six photos used in LR276.

Looking Back, p.24.
1. Kangaroo Island 7-1001-031-094
2. Kangaroo Island 7-1001-031-115

Looking Back, p.25
3. Lead Smelters at Port Pirie 7-1001-031-246
4. Mount Bold dam construction 7-1001-032-021

Rails to Woomera (LR271,272,274), p.37
Above 7-1001-038-061
Below 7-1001-038-065

In his albums, Arnold did not always record the reference numbers for negatives, and he also included photos from other sources –which is why his reference number for the negative is not useful for indexing the albums.

Hopefully this will become more useful to our members if LRRSA can find a way to mount the image linked index of Arnold's light railway album photos for SA, NT and Broken Hill which you have.

We have scanned two volumes of Arnold's hand written indexes of negatives, and there is at least one more to scan. These will need to be analysed and related to the prints which reached the NRM both loose and in the albums. We have scanned 4000 loose prints, and roughly a third of these are light rail. The indexing of the latter is not yet done.

We have also scanned a large number of his documents, which also need indexing.

Les Howard
via email

South Maitland Railways (IRN, LR 276)

It was disappointing to see a totally erroneous SMR report on p32 of LR 276. As reported in LR 253, O&K 26266 was only purchased for spares. The superstructure is badly corroded and the unit is beyond economic repair. There is no SMR locomotive 33, and no plans to run maintenance trains.

Robert Driver
via email

DAVENPORTS PAGE 27

SHOP NO.	SIZE	TYPE	GA.	DATE	NAME	LOCATION
1511	10x24	0-4-0	Std.	11/14	Oak Ridge Coal Co.	Vicksburg, Ind.
1512	6x10	"	42"	"	U. R. Crane C. & M. Co.	Scammon, Kans.
1513	10x14	0-4-04	24"	"	Frank R. Perrot	Sydney, NSW
1514	9x14	0-6-4	30"	12/14	Carr Bros. Text	New York
1515	11x16	0-4-0	Std.	4/15	Hart Bros.	Sandusco, Ind.
1516	12x16	2-6-08	"	2/15	Rio Vauto Sugar Co.	New York
1517	11x16	0-4-0	"	12/14	Summit Sand & Gravel Co.	Terre Haute, Ind.
1518	10x14	"	30"	"	Burlington Paving Brick Co.	Galesburg, Ill.
1519	"	"	"	"	"	"
1520	6x10	"	Std.	1/15	Patton Coal & Mining Co.	Frontenac, Kans.
1521	7x12	"	"	2/15		

Nebo Colliery locomotive photographs (LR 276)

The late Ray Graf visited the AI & S Nebo colliery on a few occasions in the early 1990s in company of the late Craig Wilson and Ross Mainwaring. The mine's management was very accommodating in allowing ready access to the coal haulage rail operations then still in use. A video camera was also used on some visits to record in detail all the operational procedures.

The top photo on page 48 shows the yard layout looking northwards, with the full mine car arrival road at centre and the run-around road on the right. The mine's portal is a short distance behind the photographer. In the distance, where the tracks curve around to the left, and accessed by a siding, is a building used for mine car repairs. A big black snake also resided therein!

The top cutaway section on the front of the Differential mine cars goes back to the days when these were loaded directly at the coal face by coal loading machines. A 10-ton BHP-Jeffrey type storage-battery locomotive shunted the cars in and out of the bord as required, then when all were loaded, hauled them out to an underground marshalling yard where a big 25-ton Malcolm Moore diesel loco took over for the run to the surface.

In the bottom photo, the locomotive is standing on the concrete apron that leads to the Bradford Breaker. In hauling out a full rake, the loco was uncoupled on-the-fly and turned into the run-around road, allowing the rake to run past to the creeper. The mine car creeper was situated between the rails and engaged the underside of the car by a raised horn, one of which is visible to the right of the loco. These horns, attached to an endless chain type mechanism, moved the cars along at a slow regulated speed towards the rotary dumper in the Bradford Breaker building.

A special mechanism engaged the Willison semi-automatic coupling handle on the side of the car, uncoupling each car in turn and allowing it to run into the rotary dumper. An entering full car bumped the now empty car out. This car then ran onto a traverser and was secured by an automatically raised stop. The operator stood at an electrical control panel overseeing proceedings. The traverser moved to the left, and as it did so the rear of the traverser was elevated slightly by a raised guide rail; stopping opposite the empty track the raised stop on the traverser was lowered, allowing the car to run out under gravity. It rolled along the rails and coupled to the other empty cars of the rake.

The diesel locomotive had by now run back down the run-around road to the portal where the points were thrown to access the empty road. Running back up here, it coupled onto the empty rake for another trip underground to the loading bin that was serviced by a conveyor belt at this time.

The author of this letter was offered a drive of EM Baldwin No.19 in the yard on the final day of rail operations in April 1993, thus becoming the last non-colliery employee to drive a colliery diesel locomotive in Australia. Today, the site of the Bradford Breaker and rail yard has been obliterated and bushland has reclaimed much of the area. Nebo was superseded by the new Dendrobium Colliery (owned by South32) which supplies metallurgical coal to BlueScope Steel's Port Kembla steelworks coke ovens.

Ross Mainwaring
St Ives, NSW

Memories of Garratts on Tasmania's West Coast (LR 276)

As a Garratt nut, and K Class in particular, I read Les Morley's EBR Garratt article in issue 276 with interest. Apart from being jealous of his being able to see K1/K2 in their working environment, I noted his comment about the locomotives being cut up in 1964, particularly the EBR 4-8-2+2-8-4. I read and heard of many like comments on a number of occasions, and said similar myself as I have related below.

As one of the early members of the model railway at Clayton Rivulet, near Ulverstone I was privileged to meet Cedric Rigby who was one of the senior engineers with the EBR during the steam age and discuss EBR matters. One of the comments that Cedric made in response to a query about their loss was that the EBR management held off scrapping the Beyer Peacocks and the ASGs for a long time in case someone wanted to preserve them because of their historical place in Garratt history.

Unfortunately, the preservation movement had not got underway at the time. The management only received a couple of impractical requests that would not help the EBR's finances and now we bemoan their loss.

Given their recognition of the importance of the K class, it is a pity that the TGR did not put the left over bits of the locomotive left here together as a static display at the Launceston offices.

Graeme King
via email

Memories of Garratts on Tasmania's West Coast (LR 276)

Further to the article in LR 276 by Les Morley and the K1 Garratt, I have strong feelings about K1 now residing in the UK when the Garratt factory closed and K1 became a museum exhibit and has been restored by two preservation railways and operated extensively. I agree that K1 should come back to its home in Tasmania.

Why does Australia continue to allow industrial heritage items to be given Export License?

I think that New Zealand has the correct approach and export is not allowed.

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Steam Railway magazine in the UK reports that an Avonside 0-4-0T recently arrived from Queensland.

If Australia continues to allow exports of heritage machinery, what will be left to show future generations of how Australia worked?

I am very grateful that the LR team was able to put together the magazine and mail it out to members through these sad times.

Brian Muston
via email

OBITUARY John Prideaux

We are very sorry to report the death of John Prideaux early in November after a long illness. He was 75 years old.

John played an important part in the early days of the LRRSA.

He was the Honorary Treasurer from July 1967 to June 1970. That was a very difficult time in the Society's history when there were strong differences of opinion on the committee, and a constitution that was not very helpful. He was a rock of stability, common sense and reliability.

At an Extraordinary General Meeting of the Society in April 1969, he was elected by the members of the Society to the LRRSA Constitution Committee.

That Committee met weekly to write a new constitution for the Society, which was accepted by the members at the AGM in June 1969.

John Prideaux at the Cheetham salt tramway, Geelong on an LRRSA visit, 1 March 1969. Photo: Roderick Smith

John also assisted in the organisation of many of the tours that the Society ran in those years. After 1970 John's interests changed towards electric trams, and he had not been a member of the LRRSA for many years. But his contribution to the Society at that time cannot be underestimated, without it the Society may not have survived. In appreciation of John's contribution to the early years of the Society, he attended the Society's Fiftieth Anniversary Dinner as a guest of the Society.

Frank Stamford

2019 JLN Southern Award

It is with great pleasure that the LRRSA announces the winner of the JLN Southern award for the best article published in the magazine over 2019. The winner is Phil Rickard for his outstanding two-part article 'Plateways around Melbourne' published in *Light Railways* issues 258 and 267.

The judges' report commented 'It was an outstanding article: research standard, illustrations, references. It dealt well with the controversies over materials (wood or metal paving) to be used, and set the plateways investment within the context of the Australian economy of the time. This was a new subject for many/most readers. The effort to produce such a complete history, linking with industrial, social, economic and other matters of the period, resulted in an extremely interesting read. The maps were excellent. We presume that there was considerable trawling to find photographs which showed the plateways in situ. Few captions would have noted their existence.

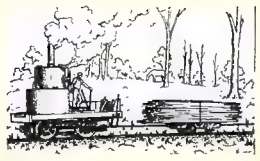
Many other articles came close, but there can be only one winner. The judges were also impressed by the next in the Clarence series (continuing a fine tradition); Gunpowder (with an excellent range of illustrations); Kew (making effective use of government archival sources); Duranbah and Cudgen sugar tramways (from a new author, and complementing the Clarence articles for north-coast NSW). So many articles are worthy of praise, but Plateways had the edge.'

We congratulate Phil on his well-deserved award and hope that this inspires others to explore the rich history of light railways in all their forms across Australia and nearby territories.

The Society thanks its independent judges, Ruth Kerr, Roderick Smith and David Whiteford, once again for their efforts in assessing the work of our many contributors.

The award was established through the generosity of well-known Australian railway historian, the late Jack Southern, and was first presented in 2014 to recognise the most outstanding article published during 2013.

Phil Rickard (left) receives his award from Society President Bill Hanks at the Belgrave station on the Puffing Billy Railway on 22 December 2020. Photo: Mike McCarthy



LRRSA NEWS

MEETINGS

LRRSA Zoom Meetings
The LRRSA will be holding regular virtual meetings via Zoom conferencing software on the dates below. Members wishing to "virtually" attend will need to pre-register via our website lrrsa.org.au and clicking "Zoom In!". After registration, details of how to join the meeting will be provided to those that have registered.

February 2021 Members Zoom meeting
Date: Thurs 11 February at 8pm AEDT
Jim Longworth will give a presentation of the tramways used in the construction of Sydney's Upper Nepean Dams.

April 2021 Members Zoom meeting
Date: Thurs 8 April at 8pm AEDT
Frank Stamford will give a presentation on the genealogy of the WA G class locomotives giving details of how the design developed over time.

Brisbane: "Meeting details to be advised"
At the time of writing, no details were available of whether the venue will be open for a meeting. If a meeting is held, details will be provided to members locally and on the Facebook page *Light Railways in Australia.*

SYDNEY: "Reflections on the South Maitland Railways"
Member Robert Driver is an accomplished photographer and researcher of the South Maitland Railways that once served the coalfields region from Maitland to Cessnock. His father was a locomotive driver and was later promoted to Charge Man at East Greta steam depot. Robert has a very broad knowledge of all aspects of this once vast private railway system. His presentation will make for a most interesting night.
Location: Woodstock Community Centre, Church Street, Burwood. Free Council car park behind building (entry via Fitzroy Street) or close-by street parking. Only 10 minutes easy walk from Burwood railway station.
Date: Wednesday 24 February 2021 at 7:30pm
NOTE: Due to the current Covid virus restrictions (which may be relaxed later?) the large meeting room at Woodstock (Penfold Room) will be limited to only 14 attendees for safe spacing requirements. Please contact the Secretary (0415995304) in advance if wishing to attend.

Melbourne: "No meeting"
There will be no meetings in Melbourne until further notice.

Adelaide: "Meeting details to be advised"
There may be an Adelaide meeting in February – South Australian members will be advised by e-mail about a fortnight before 4 February 2021. This will depend on the rules at the time.
Location:
1 Kindergarten Drive, Hawthorndene
Date: To be advised

Heritage & Tourist NEWS

News items should be sent to heritagetourist@lrrsa.org.au Digital photographs for possible inclusion should be sent direct to Richard Warwick at editor@lrrsa.org.au including the name of the location, the name of the photographer and the date of the photograph.

QUEENSLAND

FRIENDS OF ARCHER PARK STATION AND STEAM TRAM MUSEUM, Rockhampton

1067 mm gauge

At the end of October the Museum had recorded around 1,100 people fewer through the doors than at the same time last year. There was a big and fast influx for the first couple of months after opening again, but as the weather warmed up the visitors to the Museum have again slowed down. The Billard has been a problem this year, with the gearbox breaking down and a major gear breaking into three pieces. Now the wheels have not passed an inspection and workers need to get them repaired to be fit for purpose.

Tram Tracks Volume 14 Number 8 December 2020

NEW SOUTH WALES

ZIG ZAG RAILWAY, Clarence

1067 mm gauge

Seventy seven year old locomotive 218A (ex-Queensland Railways AC16 class 2-8-2) recently got a fresh coat of green and red paint (predominantly green) and is looking brand new ready for when the railway can operate again.

Lots of work is still happening around the railway, including routine maintenance to the 151-year-old viaducts, which will shortly commence. In preparation for the works, volunteers have been busy running water pipe along the side of the track which will be used to give the stone masons access to water at the various locations.

After the disastrous bushfires early in 2020, no date can yet by set for the reopening although the railway is hoping for a re-opening in late 2021. Meanwhile, workers have diesel locomotive 1004 (ex-Emu Bay Railway B-B DH) out hauling ballast wagons, which will be used to support drainage and track improvement work. This work is going on over the entire length of the track and both workers and the public are looking forward to the day that a steam locomotive hauling a passenger train can operate on the railway.

Zig Zag Railway Facebook page 15 December 2020

PETE'S HOBBY RAILWAY, Junee

610 mm gauge

In accordance with the exemption conditions of the NSW Rail Safety Law under which Pete's Hobby Railway operates, he is not permitted to allow the general public entry to either inspect or ride on the railway. However, this does not mean that the public is not able to experience the ambience of the project. His block of land has a 100 metre frontage to a public road, with the railway running parallel about 10 metres inside the boundary fence before sweeping away on highly visible large radius curves on rising grades. Except for late in the day in mid-summer, this is the sunny side for photographs.

The major feature easily visible as part of this front fence-line running is the 1915 era replica of a New South Wales Government Railways unattended platform. Pete has named the platform *Loftus* because not only was this the construction name given to the local Junee railway station back in the 1870s, but it is also the name of the village within Sydney's Sutherland Shire where he resided for some 60 years. The simple waiting shed on PHR's platform is based on the one which stood on

Perry 0-4-2TOC Kilrie *and ex QR PB15 4-6-0 448 at the Queensland Pioneer Steam Railway's Box Flat depot near Ipswich.* Kilrie *has just passed its boiler exam, following a stay replacement. Those with keen eyes will notice the rods still have to go on the left hand side of* Kilrie, *The right hand side has been fitted, and the higher cab makes life easier for the crews. Not seen is the fire hole door, which has been rehung from the driver's side. Also, a new ashpan and side tanks have been made and fitted. Photo: David Rollins*

End tipping ore trucks of 1 ft 6 in gauge from the Dittmer gold mine at the Proserpine Museum - see report in LR 276. Photo: John Browning

Hunslet 0-4-2T Pioneer *(624 of 1896) is displayed in cage like structure adjacent to the Bruce Highway with a Pioneer Mill cane truck – see report in LR 276. Photo: John Browning*

On display in the Tyto precinct at Ingham are four old four-wheel 4-tonne cane bins on a length of track, and a separately plinthed CSR steel cane truck. An interpretation board for the cane truck quotes a 1932 description of a cane cutter's job, "a good occupation for a man with the hide of a rhinoceros, the strength of a bull, and the agility of a monkey". Photo: John Browning

Sydney's Loftus station for many, many years until modernisation in the 1980s.
Progress Report 62: "Beautification Works Commence at Loftus Station"; December 8, 2020

VICTORIA

PUFFING BILLY RAILWAY, Belgrave

762 mm gauge

The Puffing Billy Railway finally returned to service on Saturday 28 November with three trains to Lakeside and return. The same timetable was repeated the next day. Initially, services were limited to Friday, Saturday and Sunday, but seven days a week running commenced on Monday 21 December and will continue through to the end of January 2021.

The opening day saw lots of satisfied people, both travellers and workers on the railway. There were many photographers along the line, the most spectacular sight being the water archway provided by the local CFA at the exit to Emerald station. Some 'enterprising' photographers decided to 'help' the engine crew by spreading oil on the line on the Emerald bank, hoping that this would mean the engine would slip and make more smoke. The engine crew was not amused.

On 18 December the Puffing Billy Railway celebrated 120 years of operation. To mark the event the Puffing Billy Preservation Society suggested early this year to the ETRB, that there should be a re-enactment of this event run jointly by the Society and the Board in the form of a special mixed train. Arrangements had commenced for the event, however the Society was advised by the ETRB in October 2020 that, "due to the nature and limitations of current and future restrictions, preparations for the reopening of the railway and the Lakeside Visitor Centre being a major focus for our team, we made the decision to not proceed with this event."

Coincidentally, it was revealed on 15 December that the ETRB was running a private charter train on Saturday 19 December but this train and the 120th commemoration were not connected.

Site visits by Andrew Webster and Puffing Billy Volunteers Facebook page 15 December 2020
Puffing Billy Times Friday 18 December 2020

WALHALLA GOLDFIELDS RAILWAY, Walhalla

762 mm gauge

This railway returned to service on Saturday 21 November, running on the winter timetable of two trains on Saturday, Sunday and Wednesday, but thereafter returned to the regular summer timetable of three trains on these days. Seven day a week running will commence on Boxing Day and continue through to 17 January, after which it will revert to the normal timetable.

At the AGM on 12 December, members were taken by rail from Walhalla to Thomson, and then down the line into the lower yard where they could inspect progress on the railmotor. The power bogies have recently been fitted and internal fitting out will soon commence. This will continue through 2021 with a start date to seven day a week running timetabled for early 2022.
Dogspikes and Diesel November 2020

At the Puffing Billy Railway, 7A was the first steam locomotive to travel up the line as far as Emerald since the end of March 2020. It took three cars to Emerald and eleven on the return to Belgrave. It is interesting to note that the rust on the rails prevented the train being positively detected at any of the eight automated level crossings and they were operated manually. Both photos: Graeme Daniel

BELLARINE PENINSULA RAILWAY, Queenscliff

1067 mm gauge

Services on the railway began on 6 December and full services will be introduced over the coming month. The first service to leave Queenscliff was, like Puffing Billy, given a water archway send off by the local CFA.

Bellarine Peninsula Railway Facebook page 15 December 2020

ALEXANDRA TIMBER TRAMWAY, Alexandra

610 mm gauge

The ATT (like all Victorian tourist & heritage railways) has been closed since March. That does not mean that all work stopped. A dedicated team of locals have been maintaining the grounds and advancing new works where restrictions have allowed. Due to a recent easing of restrictions (and the development of a Covid-safe plan), the Alexandra Market (which is held in the Museum's grounds) re-started on Saturday 12 December as a Christmas Market. Trains will commence when restrictions allow.

Some members have been working on interpretive signage for the museum's many objects and displays. The museum has obtained a grant from the Public Records Office Victoria to produce new and more permanent signage to replace that which has passed its use-by date, which is most of the signage around the museum. Workers are now able to add a 'QR' code to each sign. Apple devices have this app built in and a free app is available for download for other platforms. It means that the museum can provide the optimal amount of information in reasonably large print on each sign, with the QR code providing access to additional information. The QR code links directly to a page on the museum's website with an image, the basic information, and a more in-depth explanation.

Timberline No.170 November 2020

KERRISDALE MOUNTAIN RAILWAY, Kerrisdale

610 mm gauge

The railway will re open on Sunday 27 December, running trains at 11 am and 1 pm. Currently there is no news about the launch of the new steam locomotive, *Douglas*.

Kerrisdale Railway Facebook page 15/12/2020

TASMANIA

IDA BAY RAILWAY, Lune River

610 mm gauge

The Ida Bay Railway Preservation Society Inc. and the Tasmanian Government have signed a licence that will allow the Society to proceed with a staged restoration of the railway.

Many people supported the Society's case to reopen the railway. Society membership has grown, some additional volunteers have signed up and some donations have been made or promised. As well as thanks to all these people, thanks are also due to Minister Roger Jaensch for talking with members on site and requesting an agreement be drawn up, "to allow access to the site and rail assets for the purpose of conserving and restoring the heritage rail assets with a view to returning the railway to operation".

The Society is a not-for-profit, registered charity. It is well placed to raise funds and have volunteers as the base of renovation efforts, but a huge amount needs to be done before the railway runs again. It has been closed for over two years and track and rail assets have deteriorated. The Society is totally committed to safety; accreditation by the National Rail Safety Regulator will be the goal of each renovation stage. This will take time, money and much work. The Society is also continuing productive discussions with MONA/Dark Labs as planning for an art installation close to the Ida Bay site continues.

The Society will continue to provide information on the railway, its history and renovation through its Facebook Page. If any reader would like to help by joining or volunteering please sign up at the website http://idabaytrain.org The Society can also be reached at contact@idabaytrain.org

Ida Bay Railway Preservation Society Newsletter 2020

REDWATER CREEK RAILWAY, Sheffield

610 mm gauge

Redwater Creek was visited in early November and again in early December. On the first trip the ex Babinda Mill Malcolm Moore was operating services. This locomotive was fitted with a Fordson diesel at the sugar mill, but retains its original four speed crash gearbox. At some point the original 2 ft diameter wheels were replaced with a smaller set. Consequently, it sits very low, and the chain between the axles almost brushes the ground. The driving practice at Sheffield is to start off and remain in third gear on the fairly level track. The grunt of the diesel and the lower effective final drive ratio thanks to the smaller wheels, eliminates the need for gear changes using the lost art of double-declutching. The locomotive rides quite smoothly: there is the

The fettler's hand car on display near the ticket office at the West Coast Wilderness Railway. This was used to inspect the 2 ft gauge network around Queenstown up until the 1960s. Photo: James Shugg

The Krauss locomotive B/n 5682/5800 of 1907 dropping ashes over the new pit at Redwater Creek Railway on 5 December 2020. Photo: James Shugg

Locomotive Nicola Romeo *B/n 770 of 1925 at the Wee Georgie Wood railway at Tullah obliged with a photo stop in the forest for the sole passenger during a break in the weather. Photo: James Shugg*

usual vibration from the engine but the coil springs fitted from new in these sure-footed machines, and the well-maintained track combine to deliver a more comfortable journey for the driver than the leaf sprung steam locomotive offers. There is a second Malcolm Moore loco ex Babinda mill at Sheffield; it was retrieved from a creek and needs extensive work (see LR 274 for photo of both locos).

The Krauss locomotive was experiencing some steaming difficulties on the December visit. The quality of the Cornwall coal (sourced from the state's east) was not compatible with the fire grate, which was blocking up with ash and preventing adequate draft from fanning the fire and maintaining steam pressure as the day progressed. Services were temporarily suspended while the ashes were dropped over the new pit, which was installed as part of a works program incorporating a new platform and passing loop. Even so, six return trips were run for several dozen passengers that day.

James Shugg

WEE GEORGIE WOOD, Tullah

610 mm gauge

Wee Georgie Wood was running on several weekends through November and early December, though on the last day of operation at Tullah for 2020, the 4wPM Romeo operated the day's three services for just five passengers in gale-driven near horizontal rain, interspersed with warm sunshine. The driving ergonomics of this locomotive are not ideal, particularly on this fairly hilly railway. Simultaneous use of the screw handbrake, clutch/gear selector and throttle requires three hands, and can lead to an overheated and slipping clutch in high gear if not balanced properly. Low gear always seems to work fine, though speed in this gear is below that which the Fowler steam loco can maintain.

The dedication of the volunteers that keep trains running at Tullah is admirable; the crew there in December also had affiliations with the Abt Railway (ie West Coast Wilderness Railway), the ILRMS at Albion Park in NSW, the Bellarine Railway in Victoria and the Ida Bay Railway.

James Shugg

WEST COAST WILDERNESS RAILWAY, Strahan

1067 mm gauge

The West Coast Wilderness Railway only has one of its four original Abt locomotives available for service out of Queenstown, and there have been reports of cancelled services due to locomotive failure. Even so, trains are fully booked weeks ahead, with seats limited due to social distancing requirements. Services from the Strahan end are suspended, awaiting substantial track upgrades. Of interest on a visit in December was the fettler's hand car on display near the ticket office. This was used to inspect the 2 ft gauge network around Queenstown up until the 1960s, and would be a welcome visitor at one of the state's 2 ft gauge railways in this contributor's fantasies.

James Shugg

The establishment of the SECV in 1921 (as noted elsewhere in this issue) was the catalyst for a number of industries to establish themselves in the La Trobe Valley area of Gippsland. One such was Australian Paper Manufacturers Limited which in 1936 decided on a paper mill near the La Trobe River, about 7 km north-east of Morwell. The ready access to water, coal and electricity was added to when the Victorian Government gave APM the right to log native eucalypts in eastern Victoria. This resulted in APM being a pioneer in using eucalypts for wood pulp production using a technique known at the "Kraft" process. By 1939, this new Kraft mill had an annual capacity of 28,000 tonnes of wood pulp. A railway, almost 6 km long, from its new Maryvale mill to exchange sidings with the VR, 3 km east of Morwell was a prerequisite, as was the obtaining of suitable motive power. In Light Railways *No.274, August 2020, Geoff Pianta summarised all known APM Maryvale locomotives, including the two Whitcomb locomotives, the subject of our photographs. Builders Nos. 61108 and 61109 were two of only four Whitcombs known to have been used in Australia. The type 50-DE-70 centre cab B-B Diesels arrived in 1950, were withdrawn in 1987 and scrapped the following year. In our two photos we see (above) loco No.1 at the Maryvale Exchange sidings performing shunting duties, and (below) upon arrival at the Maryvale mill. Date: 1972 . Photos courtesy Doug Miles*